TECHNOLOGY DEPT.

First Copy

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DETROIT

IN THIS ISSUE

Cigars For Salesmen

"Cigars for salesmen" is what some of the experts are calling the period into which business is now heading. But maybe (see the story in the adjoining column) it's going to be difficult to find salesmen to give cigars to. And if you find it necessary to go back to "hiring" salesmen, instead of "picking them up," you'll find the suggestions given in the article by H. M. Butzloff on page 2 very helpful.

* * *

Plastics Go Boom

"Writing editorials," according to the editorial, "is something like living in a non-bomb-proof home in London." Anyway, seems like "The Plastic Age Is Coming!" editorial made a direct hit, so this week the editorial page follows through with a daylight raid. **Page 8.**

* * *

The Proof Is In the Reading

"Sure, radiant heating sounds like a swell idea," people will admit, "but is it practical?" In this week's instalment of his series of articles on radiant heating and cooling Henry Knowlton continues to describe some actual radiant heating jobs, and tells how warm air, hot water, steam, or electricity can be used. There are some swell pictures of installations in progress, accompanying the article. **Page 14.**

* * *

Costs and Costs—For the Jobber

"Know Your Costs To Lick Your Troubles," Howard Hubbell, progressive St. Louis refrigeration parts and supplies wholesaler, urges his fellow jobbers in outlining the plan for the Jobber's Association survey. But in describing the survey, Mr. Hubbell reveals a lot of interesting information about costs that perhaps even the survey won't turn up. **Page 6.**

* * *

Are You a Refrigerant Saver?

Want to save refrigerant from traded-in and outmoded systems? How one shop uses a single reclaiming board to handle three different types of refrigerants is told in the fifth of a series of articles on "Equipment for a Rebuilding Plant." **Page 11.**

* * *

It Can Happen—In Rawlins, Wyo.

Most dealers possibly regard bakery refrigeration equipment as something that is sold only to exclusive, big city retail bakeries. But in Rawlins, Wyo. (pop. 5,400) the Ideal Bakery is a big user of refrigeration—and just how is told on page 7.

* * *

Alarm Bells Yet

Life for the refrigeration dealer and contractor grows more complicated every day, it might seem. On page 7 a story about the installation of a "blood-bank" refrigerator tells how the box is wired to ring alarm bells if the temperature variation goes over ½° F.

Fewer Salesmen In Kansas City Quit Their Jobs

Record Good In 1940, But Aircraft Industry Now Lures Men

KANSAS CITY, Mo.—While the record of salesmen employment and turnover was generally much more favorable here in 1940 than it was in 1939, according to reports made to the Electric Association of Kansas City, dealers are now finding some cause for worry in the losing of good men to the defense industries—particularly to the aviation industry.

Of the 165 appliance salesmen who started the year 1940, 81 were out of the game by the close of the year, a loss of 49%. In 1939 the percentage of loss of men who had started out the year was 68%.

At the start of the present year 157 salesmen were employed by 42 Kansas City dealers, 73 salesmen having been hired by old and new dealers during the course of the year.

Average salesmen per dealer stands at 3.5 per dealer, somewhat lower than the average in several previous

(Concluded on Page 4, Column 3)

'Direct Selling' By 3 N.Y. Firms Charged

NEW YORK CITY—Alleged direct selling activities of three local distributors of major electrical appliances were dragged out into the open recently at the regular monthly meeting of the Electrical Appliance Merchants Association of Queens when Wallace H. Palmer, president of the dealer association, called upon representatives of these distributorships to explain practices which, he declared, constituted diversion of trade from the dealers.

The three distributors specifically cited were Warren Norge Co., Royal Eastern Electrical Supply Co., and Atlantic Maytag Co., but Mr. Palmer warned other firms not to take unfair advantage of this fact. "We know of many other instances," he declared, "affecting other firms which will be brought out in due time."

As to specific charges, it was brought out that Warren Norge Co. had sent out two letters direct to consumers last December soliciting holiday business. One of these letters was tagged as "A Christmas Offer to Farnsworth Stockholders," and offered Farnsworth radios at a considerable discount from regular prices. The other letter, which explained that "Your local Norge dealer makes a special offer to city em-

(Concluded on Page 4, Column 4)

Thugs Kidnap Victor Deissler From Office

GREENVILLE, Pa., Feb. 3—Victor G. Deissler, head of the Deissler Machine Co., manufacturer of commercial refrigeration machines, who was apparently beaten, robbed, and kidnapped from the company's offices Sunday night, was still missing tonight (Monday).

His recently purchased automobile was found late Monday in Youngstown, Ohio some 30 miles from here. The coat to Mr. Deissler's suit and his hat were found in the automobile (his overcoat was still in his office). No bloodstains were found in the car, although there were bloodstains on the floor of the office.

Employes of the Deissler Machine Co. had formed a posse today and aided police authorities in searching the countryside between here and Youngstown. No traces of the missing man were found, however.

Mr. Deissler had returned Sunday from a business trip in upper New York state and told intimates he was going to the office to put some $600 which he had on his person in the office safe. He was not heard from again.

From the evidence authorities believe the following is what happened: the robber (or robbers) had either followed Mr. Deissler to the plant,

(Concluded on Page 4, Column 5)

Carrier Workers Get Week's Pay as Bonus

SYRACUSE, N. Y.—Under the "Share the Fortunes of the Company" salary plan announced in December, 1939, salaried employes of Carrier Corp. have received cash bonuses averaging 2.4% addition to salaries per month, and equaling one week and one day of extra salary for the year, reports J. I. Lyle, president.

"The business of Carrier Corp. is improving and 1941 should be a year of excellent sales volume," Mr. Lyle said. "And our employes now realize, I believe, that they will be rewarded individually by helping make this increased business genuinely profitable. In other words, the extra

(Concluded on Page 4, Column 5)

Policy Barring 'Specials' On Automatic Washers Advocated In Oakland

OAKLAND, Calif.—A policy barring advertising of "specials" in automatic or dial-operated home laundry equipment has been recommended to dealers handling this type of equipment in a recent bulletin issued by the Appliance Dealers Trade Association of Alameda and Contra Costa Counties.

Recommendation is that there be no advertising of damaged, repossessed, used, floor sample, demonstrator, or discontinued automatic or dial-operated home laundry equipment, except by express written consent of the manufacturer or distributor in each case.

Merchandising situation in this line of appliances is such that it would be difficult to do any such advertising without laying oneself open to "bait" advertising charges, the association points out.

Leo J. Meyberg Co., Bendix distributor, has adopted the association's recommendation regarding this equipment, and has made it a part of its 1941 contract with dealers throughout this territory, reports Guy W. Wolf, secretary of the dealer organization.

ASHVE Delves Into Effect of Air Conditioning on Human Body

Radiant Heat Measurement, Thirst of Air Travelers, & Comfort Formula Discussed

By Henry Knowlton

KANSAS CITY, Mo.—How to keep airplane passengers from getting thirsty at heights of from 25,000 to 30,000 feet, when the relative humidity drops to 3% in a supercharged cabin; how to measure "radiant" heat; how to use an "electric eye" in testing air filters; how to reduce comfort requirements of mankind to a single mathematical formula—these and other problems of a complex and fast moving world occupied the attention of the American Society of Heating & Ventilating Engineers here last week.

Along with questions of tests, research, and methods were discussions of physiological research. The fact that "Jack Spratt would eat no fat, and his wife would eat no lean . . ." begins to loom as a major problem for engineers seeking to keep large groups of people comfortable. The answer is that no two individuals are alike, in muscular activity, clothing, glandular activity, and other things that affect the rate of heat production in the human being. Hence if Jack Spratt were comfortable, it would be 10 to one that his wife would be quite unhappy under the same atmospheric conditions.

Several hundred members of the society were welcomed to its forty-seventh annual meeting by an awakened Kansas City—free now after 11 years of "boss" rule. With even traffic violators being fingerprinted by a "G" man chief of police, Kansas City business men are looking forward to a new era of industrial expansion.

A.S.H.V.E. members visited the great TWA airport and maintenance shops, the thriving Cheffield Steel Co., and saw dozens of industrial plants rising on the plain that is North Kansas City. Here North American Aviation Corp. will build army bombers, and a Remington Arms ammunition plant is under construction. Nearby cantonments, like the one at Rolla, Mo., will require several 140-hp. refrigeration systems for the protection of meat and produce alone.

With this kind of activity at hand, it is easy to understand why local members of the society divided their time between busy offices and the convention sessions. All meetings were well attended, however, and technical papers were presented to a "packed house."

In reporting on work done at the

(Concluded on Page 16, Column 1)

Blast Kills Employe Of Ruegg Supply Co.

LINCOLN, Neb.—George Eppens, 25, an employe of Ruegg Refrigeration Supply Co., died from burns received when an explosion occurring at 8:40 a.m. Saturday, Jan. 25, rocked the three-story building at 245 South 11th St. which housed the refrigeration supplies firm.

A. H. Glade, store manager, was in the company's office but was not hurt. C. S. Ruegg, head of the business, was on his way to the establishment from his home when the explosion occurred.

Cause of the explosion was undetermined, although there were indications that gas from the city mains might have leaked into the basement of the building. After a thorough investigation by state and city fire officials, underwriters' experts, and members of the University of Nebraska department of chemistry, the chief of the fire department declared that the investigations had proved conclusively that no refrigeration equipment or refrigerants in the building could be blamed for the explosion. All equipment holding refrigerant was shown to be intact.

Mr. Eppens was said to have gone to the basement to get wood crating which was stored in a compartment beneath the sidewalk in front of the building. He struck a match, and there was an immediate explosion.

The basement and front of the first

(Concluded on Page 4, Column 4)

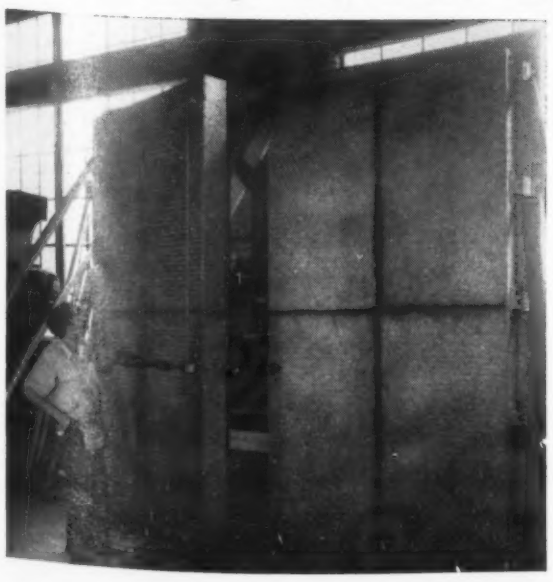
Nash-Kelvinator Nets $87,130 For Quarter

DETROIT—Net profit of $87,130 for the quarter ended Dec. 31, 1940, after normal provision for income tax, depreciation, and other expenses, was reported by Nash-Kelvinator Corp. This compares with a profit of $22,998 for the similar quarter of the preceding fiscal year. All directors and officers were reelected.

York Sales Gain 42%

YORK, Pa.—Sales of York Ice Machinery Corp. for the three months ended Dec. 31, 1940, the first quarter of its present fiscal year, totaled $5,107,373, or 42% higher than in the same period of the preceding year.

To Help Test the Big Guns



This cold storage door, shown here in the York shops, will be used to seal a cold room in the gun testing department of the Aberdeen Proving Grounds, Aberdeen, Md., in which extreme winter conditions can be simulated. This is one more contribution of the refrigeration industry to the defense program.

Deissler President Is Kidnap Victim

Victor G. Deissler, president of Deissler Machine Co., was apparently beaten and kidnapped from his office the night of Feb. 2. His car was found in Youngstown, Ohio, the following day. His suitcoat and hat were in the car. Mr. Deissler is shown here as he officiated at the ground breaking for a plant addition last fall.

Selling 'Through the Dealer' Rather Than 'To the Dealer'

The Function of the Wholesale Salesman

H. M. Butzloff, author of this series of articles, is central sales manager for Norge. Before that he had many years of experience in the field distribution end of the household electric refrigeration business, with Westinghouse, and with the old Stover Co., original Frigidaire distributor in the Chicago area.

With the introduction of new lines of household refrigerators and other major appliances, the wholesale or distributor's salesman begins a new selling season. This series of articles, by a man well-known in appliance sales work, is aimed to give the wholesale salesman some pointers on how to do a better job.

By H. M. Butzloff

What Kind of Men Do You Want

Now that we have determined the number of men needed and the method to be employed to attract them, the next step is to determine the quality of the applicants, based to a great extent on the amount of profitable business they can be expected to produce.

We must judge their ability to produce business by the attributes they possess. For instance,

a. Vision: The ability to see a bright and profitable future in the appliance business.

b. Energy: The "go-getting" qualities that always characterize the successful salesman in any line.

c. Ambition: The desire to make the most of opportunities presented.

d. Appearance: Clean-cut salesmen have a natural advantage.

e. Intelligence: A good, alert mind is needed to learn the business, know and sell the product.

f. Contacts: Naturally the man who knows many people has a big advantage in this business of appliance selling.

HOW TO INTERVIEW NEW MEN

The job of interviewing an applicant is as important as attracting the right type of salesman, for two selling jobs must be done: The applicant must sell himself, and he must be sold on the proposition offered.

Naturally, most dealers will do the interviewing and selecting of new salesmen themselves, but in many cases the wholesale salesman will find another opportunity to "sell himself" by doing this important job for the dealer, or helping him with it.

Here are some suggestions as to how to go about interviewing:

a. THE APPLICANT SELLS HIMSELF

Unless he has filled out an application form which you will have studied before the interview, you will want to know:

(1) Personal facts: name, address, age, family, etc.

(2) Education: high school, college, business, technical.

(3) Experience, general and specific—You will want to analyze in particular his employment record of the last 10 or 15-year period, since that often reveals "floaters" whom you would not want.

(4) Earning capacity.

(5) Reasons for changing positions.

(6) Appearance and personality.

(7) Character references you may want to follow through on.

(8) Now let the applicant talk about himself, sell himself to you—this is a good chance to observe his best salesmanship in action.

b. THE PROPOSITION IS SOLD TO THE DESIRABLE APPLICANT

If your study and analysis of the foregoing information and selling ability meet your approval, then sell the proposition to him. The job you do here often decides whether you make or break a good man. And it also gives you an excellent opportunity to put before him an example of the sort of salesmanship he will be expected to strive for.

In selling your proposition to the applicant:

(1) Sell salesmanship as a vocation. Paint a picture of profit possibilities — advancement — opportunity—no "timeclocks" to punch—time is your own. No limit to hours worked or income earned.

(2) Sell the particular business (i.e., refrigerators, ranges, etc.), on the overall market possibilities—saturation — replacements — repeat buyers.

(3) Sell the particular companies who make the products—leaders—financial strength—number of users—the line—the acceptance—advertising support—training given.

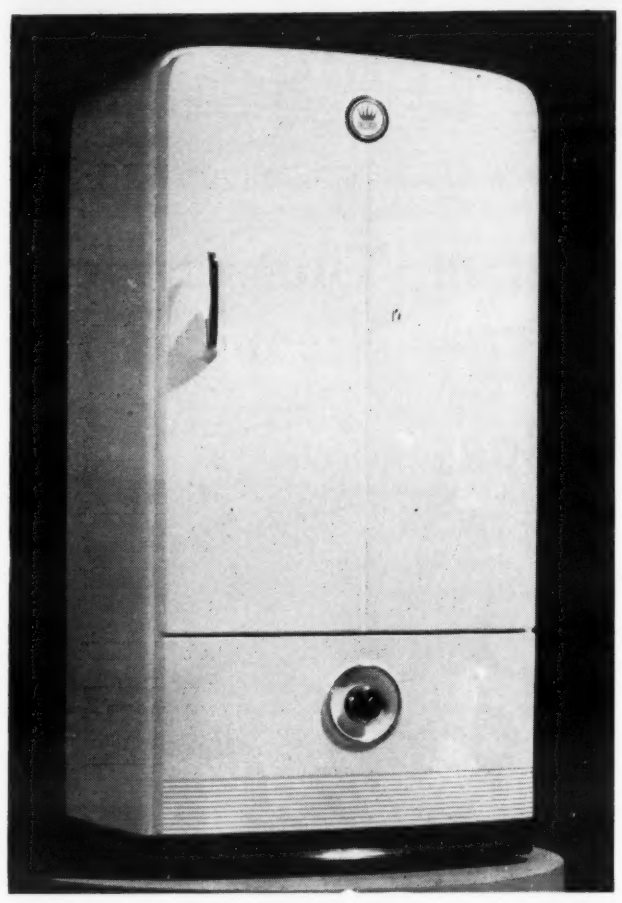
(4) List advantages offered by the dealer—the territory and floor selling set-up — compensation — bonuses—prizes—local reputation—advertising support—opportunity for advancement — permanency — other personnel—boss—home conditions.

(5) What is expected of the salesman? Be frank and honest with a new salesman. Paint the picture a little dark rather than too rosy. Cover creative selling, competitive selling, willingness to work nights and overtime as required—make reports—capacity to absorb knowledge of product and selling technique. Stress willingness to start at the bottom and accept a modest return for his services during the "apprenticeship" period.

SAMPLE APPLICATION FORM

Name ..... Date.....
Address ..... Phone.....
Age..... Nationality..... Married..... No. Dependents.....
Education: High School..... College..... Business.....
Technical Training .....
Employment Record:
Date Employed..... Employed by..... Nature of Work.....
Approximate Monthly Earnings .....
.....
.....
.....
Three Character References:
Name ..... Address..... Business.....
.....
.....
.....

Three of Frigidaire's Four New Cabinet Styles For 1941



Cabinet styles to meet kitchen patterns ranging from conservative to ultra-modern are offered by Frigidaire in its 1941 refrigerator series. Models in the "L" series (above left) emphasize simplicity in line and form; "M" models (right) have modernistic fluting across door panel and storage bin; and Cold-Wall models (below) have raised chromium finished strip extending up the center of the door and across the cabinet top. Each series has its own distinctive style of nameplate. Storage bin knobs are recessed.

Two-Door Freezer On 1941 AMC Models

NEW YORK CITY — Associated Merchandising Corp.'s 1941 line of AMC refrigerators features a two-door freezer compartment designed especially for large-scale storage of frozen foods, and claimed to contain 404 cu. in. of space.

Other highlights of the eight-model line include an all-porcelain meat chest, one-piece wrap-around cabinet construction, and chrome finished flat wire shelving.

Prices on 1941 AMC models are:

Standard Series	
MB41	$ 89.95
MB61	109.95
MB81	.....
Deluxe Series	
AMD 691	149.95
AMD 791	164.95
Promotional Series	
MFP 61	89.00
MBS 61	99.95
MBD 61	.....

Furniture Store Volume Up 57% In 1940

CHICAGO — Sales of household electric refrigerators by furniture stores increased an average of 57% during 1940, as compared with a general industry sales increase of 40%, according to a survey by National Retail Furniture Association.

Sales increases ranged all the way from 64 and 65%, reported by the large and medium-size stores, respectively, to 46%, reported by the smaller stores covered in the survey.

Best selling price level, the survey revealed, was "up to $120," with more than 27% of the dealers reporting that as their top sales class. Second best level was $139, and third best $149.

Features that sold best during the year, the report revealed, were: 1. Name; 2. Equipment, inside arrangement, and gadgets; 3. Price; 4. Style and beauty; 5. Economy and performance.

Gilmer BELTS

THE PROFITABLE LINE FOR F. H. P. INSTALLATIONS

IF you want to make handsome profits on all types of f. h. p. installations... if you want to be sure of customer satisfaction . . . you'll handle Gilmer V-Belts.

Gilmer F. H. P. V-Belts fit 6800 models, 153 makes of electric refrigerators; also oil burners, stokers, air conditioners, beer pumps, water pumps, compressors and many other belt-driven appliances.

Gilmer V-Belts are made of tough, durable materials by belt specialists.

The Gilmer Distributor nearest you has a complete size range of V-Belts available for prompt delivery. Ask him to supply you with the Gilmer "Eye-Ful" Tower Assortment —a belt bargain that brings you a clear profit of $14.01 and practically sells itself!

L. H. GILMER COMPANY
TACONY, PHILADELPHIA, PA.

SERVEL
COMMERCIAL REFRIGERATING MACHINES

Servel's 4-cylinder 20 HP machine unit . . . one of 56 models in the complete line.

Whether your requirements are large or small, standard or special, Servel engineers can help you solve your most vexing problems of commercial refrigeration or air conditioning. Write today to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Ind.

What Make Of Refrigerator Do You Prefer?

MORE PEOPLE PREFER A GENERAL ELECTRIC THAN ANY OTHER REFRIGERATOR...

According to recent national magazine surveys among refrigerator owners and prospective buyers, over 50% more people prefer General Electric than any other make.

G-E is tops in preference *because it's tops in performance* . . . and top performance means greater customer satisfaction, minimum service calls, and greater profit.

It's G-E for Me!

News!

A beautiful big new SEVEN CU. FT. G-E for the price of last year's "SIX." Here's refrigerator news that's making the headlines! In addition, new G-E models have Perfected Conditioned Air, New Butter Conditioner, New Dry Storage Drawer, New All-White Textolite Door Strips, along with many other innovations.

Research keeps General Electric years ahead!

GENERAL ELECTRIC

Starting the New Year Right

Happy participants in a New Year's celebration staged by General Electric Supply Corp., San Francisco, for some 125 contest-winning dealers were Mr. and Mrs. O. B. Wilt; Carl Rohr; C. W. Goodwin, district manager; and Miss Irene Rich, NBC star who was one of the special guests.

Rudy Vallee, another guest, examines the midget radio being shown him by T. F. Hall of G-E Supply as Mrs. Walter Boland looks on.

Recent guests on the Rex Cole radio show, "Where Are You From?" were seven New Haven R. R. diner hostesses who accompanied Cole dealers on their preview trip to the G-E factory. Lower row: Anne Bligh, Winifred Ray, Janet Gluckert, Rita Fitzpatrick, Barbara Brown. Upper: E. H. Campbell, Ruth Jamerson, Dr. Henry Lee Smith, Dolly Hall, H. W. Quinlan, and Alan Kent.

Peerless Men Plan 1941 Sales Program

Members of the sales organization of Peerless of America, Inc. met just before the All-Industry Exhibition to discuss 1941 plans and policies. Reading around the table (left to right) are: L. J. Pitcher, valve department manager; M. J. Meiklejohn; H. E. Wickham, Dallas branch manager; V. Smith, chief engineer; W. McElwain; R. E. Birdsall; F. C. Hawk, plate department manager; R. C. Follett, air conditioning department manager; J. E. Manahan; T. C. Bickel; J. M. O'Connor; W. A. Honeychurch; F. C. Neville, comptroller; C. E. Johnson; H. W. Lindsay; R. W. Kritzer, president; B. W. Henn; C. A. Hulsman; S. C. Moncher; R. C. Eikenberry; A. H. Witt, Los Angeles branch manager; E. Bockmeyer, New York branch manager; F. C. Hutchins; John Murcott; R. Carpenter; M. W. Knight, general sales manager; M. E. Miller, assistant to president.

Fewer Salesmen Quit Jobs In Kansas City

(Concluded from Page 1, Column 2)

years, which has been somewhere around five salesmen per dealer.

Following is the study for the first and last half of the year 1940, the summary report for the year:

First Half of 1940

165	Salesmen working for 36 dealers on Dec. 27, 1939. (Average of 4.6 salesmen per dealer.)
48	Gone by July 8 (loss is 29% of the 165).
117	
38	Hired in this period.
155	Working July 8, 1940 for the 36 dealers, average of 4.3 per dealer (6% less salesmen than on Dec. 27).
14	Employed by 6 new appliance dealers.
169	Total salesmen employed July 8, 1940 by 42 dealers. (Average of 4 per dealer.)

Second Half of 1940

169	Salesmen employed July 8, 1940 by 42 dealers. (Average of 4 per dealer.)
33	Left appliance business (loss is 20%).
136	
15	New salesmen with 40 dealers (2 dealers quit).
151	Total working Jan. 13, 1941 with 40 dealers, average of 3.8 per dealer. (11% less than July 8, 1940.)
6	New salesmen employed by 5 new dealers.
157	Employed Jan. 13, 1941 by 45 dealers, average 3.5 per dealer.

Summary for the Full Year 1940

165	Salesmen with 36 dealers Dec. 27, 1939 (average 4.6 per dealer).
81	Left during the year (loss is 49%).
84	
73	Hired during year.
157	Working with 42 dealers Jan. 13, 1941, average 3.5 per dealer. (This is 7% less than the total at start of 1940 by 36 dealers.)

New 'Wizardaire' Prices Start At $139.50

TOLEDO — The three new 1941 models of "Wizardaire" window-type room coolers offered by Certified Products Co. again feature hermetically sealed refrigerating systems, and an independent ventilating system.

Two models in the 1941 line use a ⅓-hp. condensing unit and have a cooling capacity of 4,100 B.t.u. per hour. The third model uses a ½-hp. condensing unit, with a capacity of 5,350 B.t.u.

The ⅓-hp. units are made in "deluxe" and "summer" types, while the ½-hp. unit is a deluxe type. The deluxe models provide year-around utility as ventilators, as the fan motor may be operated alone to provide adjustable amounts of filtered air.

Other features claimed by the manufacturer are all-steel cabinets with baked enamel finish, and a means for altering supply air direction to suit room conditions. In addition, windows may be raised and lowered after installation.

Suggested list prices start at $139.50, f.o.b. Toledo, for the ⅓-hp. summer model.

Condensate is removed by the special draw-off method on which Certified Products has patents pending.

Explosion Wrecks Store Of Nebraska Jobber

(Concluded from Page 1, Column 4)

floor which housed the parts department was blown to a shambles. Some merchandise and all glass in the store's windows were blown into the street. The greater part of the merchandise and stock will be a total loss, declared Mr. Ruegg. All stock, fixtures, and equipment was completely covered by insurance.

The office part of the establishment, in which all records were kept, was unharmed by the explosion.

Temporary arrangements were made immediately to continue the business without interruption, and an emergency stock was picked up from the Omaha branch of Ruegg Refrigeration Supply Co.

Mr. Ruegg declared that the installation of safety releases and proper vents on the refrigerant charging system helped considerably to prove to investigators that refrigerants were not to blame for the explosion. Two days after the explosion the fire chief made a statement in the newspapers to the effect that refrigeration equipment was not at fault.

Plans have been made to rebuild the building with a modernistic front and to continue business at the same location, Mr. Ruegg stated.

3 N. Y. Firms Accused Of Discount Selling

(Concluded from Page 1, Column 2)

ployes," offered to send a special "courtesy card" to such employes entitling them to a special Christmas price plus "trade-ins up to $50" on old equipment.

The Royal Eastern firm, it was alleged, was inviting business direct from consumers by making its catalog and other literature available to them upon request. To substantiate this charge, Mr. Palmer produced a "shopping report" obtained by the association.

The Maytag company, it was stated, had sold a washer at dealer's cost direct to a salesman no longer in the employ of a dealer.

Each of the three accused firms assured the dealer group that there would be no recurrence of the matters in question.

Victor G. Deissler Is Kidnapped By Thugs

(Concluded from Page 1, Column 3)

or perhaps was already in the plant. Mr. Deissler was apparently struck from behind while sitting in his chair, and dragged in the chair toward the door (near to which the chair was found). There were bloodstains on the chair and on the floor.

An iron bar was found on the floor of the office, papers were scattered about, and the safe was open. According to the best knowledge of the employes, however, nothing was missing except Mr. Deissler and the papers and money that he had on his person.

There was some evidence, said County Detective A. C. Barnes who conducted the investigation, of footprints outside of the window in Mr. Deissler's office, but a snowfall here last night obliterated any definite signs of tracks or footprints around the plant.

Mr. Deissler, who is 43 years old, has been head of the company for a number of years. He was in attendance at the company's booth at the recent All-Industry Refrigeration & Air Conditioning Exhibition in Chicago.

Carrier Employes Get Week's Pay as Bonus

(Concluded from Page 1, Column 3)

salary payments during 1940 have brought home the fact that individual effort results in better profits that are shared by employes as well as stockholders."

Under the plan, result of a nine-month study and field survey by James A. Bentley, vice president in charge of finance, every salaried worker shares in direct proportion to the fortunes of the company. During each month, the company computes its average net income or loss for the preceding 12 months without reserve or reduction for income or profit taxes.

Salaries are then adjusted on a percentage basis, determined by dividing 20% of the previous 12 months' average monthly net income or loss by the total base salaries of all employes for the current month.

All-Year Window-Type Unit

Deluxe models of Wizardaire's 1941 window-mounted air conditioners can be put on all-year duty, for cooling in summer and ventilation in winter. Model shown is the ½-hp. Deluxe unit, which has a capacity of 5,350 B.t.u. All models have hermetically sealed refrigeration systems.

NEW! ENTIRELY PRE-ENGINEERED
DOME COOLER
SETS A NEW HIGH IN ALL-AROUND VALUE
Peerless OF AMERICA INC.
Midwest Factory General Offices—515 West 35th Street, Chicago
Branch Offices: New York, Los Angeles, Dallas, Export Div., Detroit

MANHATTAN V-BELTS
for the Service that Saves
POWER—because side compressibility makes belt grip the grooves without slip—because flexibility gives uniform "pull."
WEAR—because endless cord strength member floats in rubber in neutral axis, resisting internal heat and side wear.
TIME—because maintenance and service are uninterrupted.
THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.
45 Townsend Street Passaic, New Jersey

The BETSY ROSS STEALS THE SHOW!

(ABLY SUPPORTED BY THE DOLLY MADISON AND THE MARTHA WASHINGTON)

CHICAGO—Acclaimed "the biggest dollar value of 1941," the Westinghouse "Betsy Ross" stole the Chicago Housewares Show, January 9 and 10.

Big hit with enthusiasts is the fact that the "Betsy Ross" is strategically placed in the new line for step-up selling. "A cinch to sell up to, and beyond" and "it will be the *best seller* of '41," prophesied top-flight salesmasters when they got the complete story on this new *Super Six*.

Star features winning most applause are:

★ COLONIAL BLUE INTERIOR trim, with matching water server and dishes.

★ TRUE-TEMP CONTROL for Super Market Refrigeration.

★ SUPER FREEZER, with extra space for frozen foods.

★ DRAWER - TYPE MEAT STORAGE, scientifically ventilated.

★ GLASS - TOPPED SLIDING CRISPER.

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STEP IT UP with Westinghouse in '41

'Know Your Costs To Lick Your Troubles' Hubbell Urges Jobbers

Outlines Plan of N.R.S.J.A. Survey and Tells of Some Methods Used By Individual Jobbers

CHICAGO—There is much need right now for wholesalers of refrigeration parts and supplies to determine accurately their costs of doing business, declared Howard Hubbell of Brass & Copper Sales Co., St. Louis, in urging members of the National Refrigeration Supply Jobbers Association at their recent convention to participate in the "Cost Analysis" survey planned by the group.

"A little less than two years ago," said Mr. Hubbell, "K. M. Newcum of the Superior Valve & Fittings Co., made a talk at a Rema meeting. He pointed out that:

"'Out of 150 of the better jobbers in the United States

"'1. 66 or 44% are making refrigeration parts and supplies their principal department.

"'2. 22 or 14⅔% are in the mill, mine, and machinery supply business with a refrigeration parts department.

"'3. 22 or 14⅔% are electrical, or radio parts and supplies jobbers.

"'4. 11 or 7⅓% sell brass and copper and possibly other metals with a refrigeration parts department.

"'5. 11 or 7⅓% are in the plumbing and heating supply business with a refrigeration parts department.

"'6. 10 or 6⅔% are automotive parts jobbers.

"'7. 6 or 4% are in a miscellaneous group.

"'8. 2 or 1⅓% are oil burner supply houses with a refrigeration parts department.'"

The N.R.S.J.A. questionnaire, said Mr. Hubbell, will bring out four groups.

(1) Wholesalers in refrigeration and air conditioning supplies solely

(2) Wholesalers of the above, who also sell copper, brass, or similar metal items

(3) Wholesalers of the above, who also sell automotive, plumbing, heating, electical, and mill supplies

(4) Jobbers who also manufacture, or have some other activity.

N.R.S.J.A. Secretary Fred Hovey, in outlining some of the obvious advantages that he feels we will derive from this work, has said:

"The participant can ascertain whether his business is overstaffed by comparing the number of his employes with his total volume of sales and noting how his ratio compares with the average ratio of the trade.

"He can ascertain how his ratio of gross profit and net profit to net sales compares with the average of all cooperating jobbers and with the jobbers who are in the same type of business as he is, also by classes; for instance, the jobbers who also carry copper and brass can be averaged as one group so that the jobber handling copper and brass can see how his operating results compare with those of other jobbers also handling copper and brass.

"The figures of those jobbers who also sell automotive and mill supplies can be averaged as one group and such jobbers can see how their operating results compare with the averages of the trade, also the figures of jobbers who manufacture can be averaged as one group."

TO LIST 13 EXPENSE ITEMS

If the proposed statement form, Mr. Hubbell pointed out, is used in making the survey, members will be asked to report, in Question 10 on the survey statement form, 13 different items of expense, and the cooperating members can see how their ratio of these items of expense to their total expense compares with the averages of the trade.

"AIR CONDITIONING & REFRIGERATION NEWS of Oct. 15, 1940, quoted a talk given by J. W. Baillie, secretary-treasurer of Detroit Lubricator Co., and on page 13, he says in part—

"'Rema can be of immeasurable service **by compiling and publishing present standards of performance** that the individual jobber can lay his performance up against and so know himself.'

"You will see that the manufacturers would be vitally interested in any figures which we compile. I don't know whether we should submit these to the manufacturer, or whether we should inaugurate any scheme to cooperate with them. Mr. Tolley of Airo Supply Co. feels that Mr. Baillie's article contains a lot of valuable information, but he and I believe that the figures are too general to be of much use for our purpose. We really don't know the authority for Mr. Baillie's figures.

"I believe that this survey will give us figures which will be of great help to us in our individual, or group association with those manufacturers who sell to us. I have often felt that the manufacturers must be terribly irked by an indiscriminant, unfounded, unnecessary demand for greater margins just as a matter of course. We must prove our point. We must do things for ourselves. Performance goals will help us greatly.

SHOULD BE JOBBERS' OWN SURVEY

"I am inclined to think that we should make this survey entirely of our own accord, and finance it entirely with our own funds. I know that all of us will be very anxious to find out just how Mr. Baillie's and the Rema figures, as outlined in this article in the NEWS, compare with the actual facts, as we will determine them.

"I would like to say that there are lots of ways that we can help ourselves. We must not think that we are only selling refrigeration and air conditioning supplies, we are really selling your customer prospects in a certain trade territory. Present your employes—all of them—in pictures and in publicity—in the local press and in the trade press.

"I have felt lately that the AIR CONDITIONING & REFRIGERATION NEWS, and other trade papers have not contained enough wholesaler's or jobber's news. I suggest that all of you cooperate with the editorial board of the NEWS, and other trade papers so that we can keep the distributing trade to the fore-front.

"We want to keep our distribution channels before the manufacturers who are now serving the trade through us, and before any new manufacturers who will always be coming up, and we, of course, want to keep our class of distribution before our customers. Publicity for any one of us, is publicity for the jobber classification.

HOW COMPARISONS HELP

"Alex Holcombe turned over some figures that the Middle Atlantic Refrigeration Supply Jobbers Association had gotten together at Harrisburg last September. Among those figures they showed sales, salaries, and expenses as 10.6%. Our figure happens to be 6.52%. Part of that difference is undoubtedly because we have direct sales, and we have metal sales, and the cost of doing business on metal is less than it is on refrigeration.

"However, I got a certain amount of satisfaction from the fact that our figure was less than was theirs, and I in turn would imagine that they would want to investigate thoroughly to see whether they could bring their percentage figure down. The only real answer is more figures with more breakdowns.

"On office salaries and expenses they reported 5.6%, which lines up very well with ours, so naturally, I am not going to worry much about office salaries and expenses. But I am not absolutely sure that the cooperating members, who gave this 5.6% average, were breaking down their expenses in a uniform way. With a survey as outlined now, we will all be reporting similar expenses under uniform labels.

"We handle our country territory with four different salesmen. We obtained maps of the various territories, which listed all towns of a certain population—750 or more people.

HOW TO COMPARE BY AREA

"First we made a tabulation of the various counties in a man's territory, and sub-listed under that total county population the names of towns of 750 or more, and then had the total town population in the territory, as well as the total county population, which, of course, included farmers and small villages.

"We then listed sales in that territory, and were able to get the average dollar value of refrigeration sales per hundred of population in the total territory. We are also able to get the average dollar refrigeration sales per hundred population in the towns. The point is: a section of several counties in Illinois, which pretty well matched similar counties in Missouri, as far as their total county population was concerned, and as far as their having approximately the same number of people living in cities of 750 or more, should have equal dollar sales per hundred population.

"What we, of course, found was that some territories were producing much more business per hundred population than were other territories. We felt that it was reasonable to presume that the salesman whose dollar sales per hundred population were lower, should work that territory harder and bring up his average dollar sales. Of course, all salesmen were stimulated by the high figure of the higher salesmen, with the result that all of the salesmen brought their figures up.

"Certainly, the same sort of figures could be obtained between jobbers in locations throughout the country.

"Is our gross margin up to the average? In this connection I would like to bring out the point that the gross margin should increase. Messrs. Tolley, Merkel, and I have had a little correspondence about extra expenses that we have been put to under the new laws.

STUDY EFFECT OF TAXES, AND WAGES & HOUR LAW

"As I told them, when we were working 45 hours a week, our salaries, which are now subject to the Wage & Hour Act, were 5.29% of our sales. When we reduced hours from 45 hours to 40 hours we, in effect, increased our payroll by approximately 11%. When we increased our salaries by 11% we find that our salaries are .66% of our sales higher.

"Our Social Security Tax is an important item. We find that Unemployment Insurance, and Old Age Benefit Tax paid by the company, plus the increase in our wages paid, due to the Wage & Hour Law, necessitate that our gross profit must be increased 1.04% to compensate for these two laws.

"Or, in other words, if you are making 2% on sales and we continue to get the same gross profit on the products that we sell, we will be down to making .96% of sales, that is, our profit will be halved. To keep our position, if we were making a gross profit of 25%, our price schedules should be adjusted so that we now make 26%.

"Walter Schroeder says—

"'With the advent of Social Security Taxes, not one nickel was passed along to the consumers. The same holds true of practically every increase in the cost of doing business. And if that continues, the answer is obviously that the net profit of the jobber becomes smaller and smaller, and I think that we must put this up to the manufacturer in the right light.

WHEN TO GIVE VACATIONS

"While the matter of vacations has nothing to do with this analysis, I, none-the-less, would be very interested as to the vacation practices of the various wholesalers. When should they occur? Certain manufacturers allow no vacations during the summer months. We have tried to restrict ours. What is the consensus of our industry on vacations as to when they should occur?

"Several years ago the Pacific Metal Co., Williams & Co., and ourselves, interchanged some figures showing the percentage of all refrigeration business done in each month of the year. The curve of our business very closely approximated their curve. After digesting these figures for four years, we set as our quota for the curve of our 1940 refrigeration business the percentages shown in Table 1.

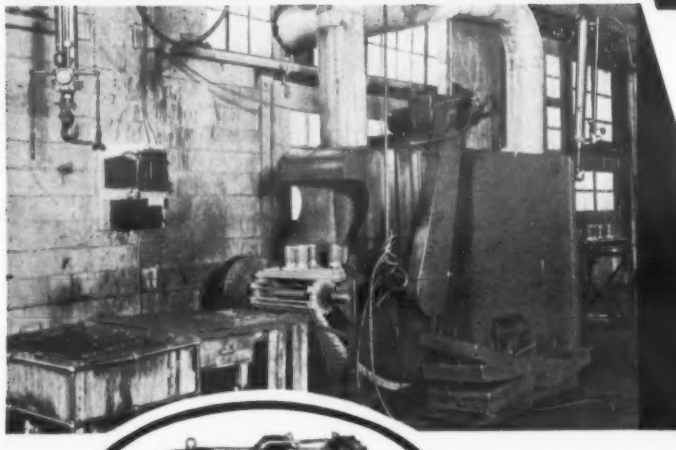
"Actual results for 1940, by quarters were that 1.1% in a quarter was our greatest variation from the above and the previous year showed comparable accuracy. With these figures I can pretty well tell our company just what our annual sales on refrigeration are going to be as I have a chance to adjust for our position at various points in the year.

"Our proposed survey will give each member the opportunity to compare his operating figures with the average figures of other participating members, possibly breaking the groups up into profitable concerns—those that break even and those that are losers, with the result that each member would be in a position to know not only what his gross profit **is**, and what his various operating expenses **are**, but what they **should be**."

Table 1—Percentage of Jobbers' Business By Months

In January	we should do	5%	of our annual business
In February	we should do	5%	of our annual business
In March	we should do	8%	of our annual business
First Quarter Total		**18%**	
In April	we should do	10%	of our annual business
In May	we should do	11%	of our annual business
In June	we should do	12%	of our annual business
Second Quarter Total		**33%**	
In July	we should do	13%	of our annual business
In August	we should do	9%	of our annual business
In September	we should do	8%	of our annual business
Third Quarter Total		**30%**	
In October	we should do	8%	of our annual business
In November	we should do	6%	of our annual business
In December	we should do	5%	of our annual business
Fourth Quarter Total		**19%**	

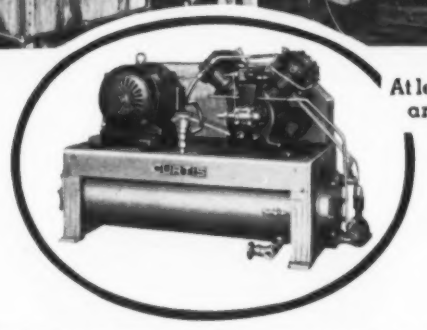
Why Curtis is the Extra Value *Line*



Where CURTIS Parts Take a Bath!

This illustration shows the giant washing machine (capacity 325 g. p. m.) in the Curtis factory, where machined parts and castings pass through a multiple shower bath and are deluged with a boiling hot chemical solution which removes all grease, oil and metal particles. The heat imparted to the parts in washing assures thorough drying before the end of the process, following which all bright parts are dipped in an anti-rust bath before being used or placed in stock.

Thus another remarkable piece of equipment contributes to the extra value you'll always find in every Curtis product—with every manufacturing and finishing process performed in the complete Curtis plant under careful, accurate supervision. The result is the long life, exceptionally high efficiency and dependable performance characteristic of every Curtis condensing unit.



At left—The Curtis 15 H.P. Shell and Tube Condensing Unit.

CURTIS REFRIGERATION AIR CONDITIONING AND COMMERCIAL

"Builders of Condensing Units Since 1922"

CURTIS REFRIGERATING MACHINE CO., 1912 Kienlen Ave., St. Louis, Mo.
Division of Curtis Manufacturing Company

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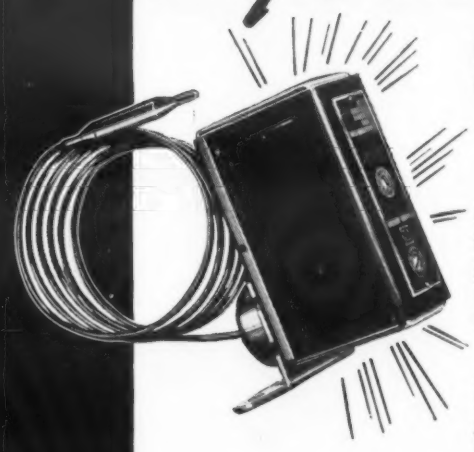

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Write for Bulletin

Refrigerated Case Is Focal Point In Bakery

This Rawlins, Wyo. bakery attributes much of its growth to the use of electric refrigeration equipment, including refrigerated display case which sets in direct center of display counters, and is easily seen by passersby.

* * *

Baker In Small Wyoming Town Shows How Helpful Complete Refrigeration Can Be

RAWLINS, Wyo.—Effective use of commercial refrigeration has lifted the Ideal Bakery, owned by O. J. Whitlock, out of the "just another bakery" class and transformed it into one of the most successful operations of its kind in the state. The bakery, which started back in 1928 as a one-man shop, now employs a score of persons, and has one of the best equipped shops for its size in the entire country.

Refrigeration equipment is used in both the preparation and sale of baked goods, and includes a dough retarder unit in the shop and a refrigerated display case for merchandising whipped cream and custard products during hot weather. Business has increased noticeably every year since the first refrigeration equipment was installed in 1937.

85% OF COUNTY'S TRADE

Rawlins is a county seat town of 5,400 people in a county of about 12,000 population—and the Ideal is getting better than 85% of the entire county's bakery business, despite competition from two other bakeries in Rawlins and chain-store and big-bakery operations in such neighboring cities as Denver and Salt Lake City.

Use of refrigeration for dough retarding has been very necessary to building up increased production, the bakery points out. This has enabled Ideal to have Danish rolls available on demand, and to build up a large volume in rolled-in pastries which competitors so far have not been able to touch. But more important, from an operating standpoint, is the fact that use of dough retarding equipment has enabled the bakery to level off its production schedule, eliminating "rush hours" followed by costly periods of inactivity.

Dough retarder box, in which prepared doughs can be stored for two or three days without their rising or souring, is maintained at a temperature of 40° F. with 90% relative humidity. Danish rolls and other rolled-in products, kept ready in this case, can be removed for baking at periods of the day during which they are most in demand.

Also, the bakery can bake in smaller batches and keep its goods fresher, cutting off competition both from outside bakers and local firms who do not use this type of equipment. Refrigeration also reduces spoilage of baked products, by allowing closer control between the supply and what is needed for immediate baking and consumption.

Most stored doughs are kneaded into final form before being placed in the refrigerator, so that all the baker need do is to transfer the trays from dough retarder to oven, without additional processing.

VISIBLE FROM STREET

Refrigerated display case, used for storage of whipped cream and custard baked goods, has been found an important aid to sales of this type of delicacy, especially during hot weather. The case is placed at the back center of the retail department, where it attracts customers' eyes, even from the sidewalk. In fact, many customers report that a glimpse of the case and its contents was the magnet that drew them into the store.

While most bakeries produce whipped cream and custard products during cold weather, lack of refrigeration facilities makes this uneconomic in summer—and the Ideal has used its display case to transform these otherwise seasonal goods into year-around sellers. Temperature of the display case is maintained at 45° F.

Musser Opens In Harrisburg

HARRISBURG, Pa.—The Harrisburg Refrigeration Co., headed by Franklin B. Musser, has been opened at 121 So. Second St. here. The firm will sell and service Frigidaire.

'Blood Bank' Refrigerator Has Controls Wired To Ring Alarm Bells If Variation In Temperature Goes Beyond Half-Degree

MADISON, Wis.—A special "blood-bank" refrigerator has been installed in the Wisconsin General Hospital, located on the campus of the University of Wisconsin, by the Pflugradt Co. of Milwaukee, G-E commercial refrigeration and air conditioning distributor. The 32-cu. ft. all-porcelain box was designed under the supervision of A. G. Pope, engineer for the Pflugradt Co.

Mr. Pope reports that the lower half of the reach-in box contains four individual compartments for the four types of blood. Each compartment is equipped with an outer door, and an inner, stainless steel door. Each of the inner doors is equipped with a lock.

By holding the compartments at exactly 39½° F., it is possible to keep all four types of human blood on hand in the hospital, so long as the temperature does not vary over plus or minus ½°. When blood is taken from the refrigerator for an emergency, it is immediately replaced from a donor having the same type of blood, so a "blood-bank" is always on hand.

Experience has shown that normal requirements are about equal for the four standard types of blood, and for this reason an equal quantity is kept in each compartment of the special refrigerator.

Refrigeration is supplied by two ⅓-hp. G-E compressors which operate two wall-type coils located in the upper section of the refrigerator. One of these units is used to cool the box, the second acts as a "stand-by" unit for the purpose of safety. When the second compressor and coil go into operation a red light on the top of the box turns on, a signal that the first compressor is out of operation, and requires immediate attention.

Two separate power lines serve the box, so that if the electricity is shut off on one circuit, the second circuit will supply power. A three-way switch is used so that either line may supply power to either compressor, automatically, at any time.

The control panel on top of the refrigerator is equipped with the red signal light mentioned above, a recording thermometer, (Brown Instrument Co.), and four temperature controllers. One controller operates one compressor and another the second compressor.

The other two temperature controllers are wired to alarm bells and lights in the engineer's office, seven floors below. If the temperature rises more than one-half of one degree, one controller signals the engineer; if the temperature drops more than one-half of one degree, the second controller signals.

The compressors are hooked up so that if the temperature rises slightly, No. 1 compressor cuts out and No. 2 compressor automatically cuts in. At the same time, the signal light on the outside of the box goes on. The same thing happens if the temperature drops slightly.

Mr. Pope reports that since the system has been in operation the temperature recording device has shown a constant temperature in the refrigerator of 39½° F., without variation. The control system was arranged, however, to provide stand-by compressor service at all times, dual electric service, and ample alarm to physicians and engineers in the hospital, should the system get out of order.

Mr. Pope feels the intricate control system used on the refrigerator was essential to keeping a "blood-bank" with perfect safety.

Mullin Bros. Equips Two Curling Rinks

MINNEAPOLIS—Two new curling rinks, each measuring 14 x 145 feet, have been installed by Mullin Bros. Co. for the Curling Club of St. Paul.

A. R. Mullin reports that ammonia equipment was used to cool pipes under the ice in the same way that skating rinks are usually erected.

San Diego Dealer Supplies Navy

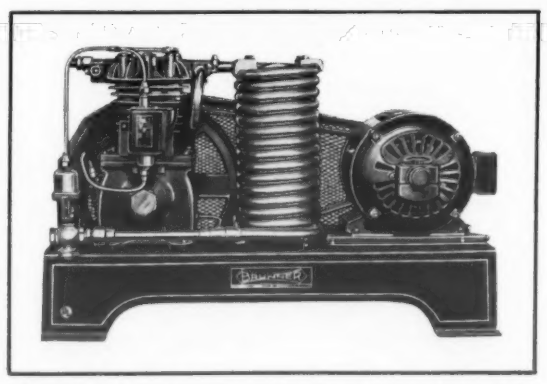
SAN DIEGO, Calif.—The Naval Supply Depot here has awarded a contract to the Refrigeration Equipment Co. of this city to supply refrigerating units valued at $3,429.

HOT STUFF

ON COLD FACTS

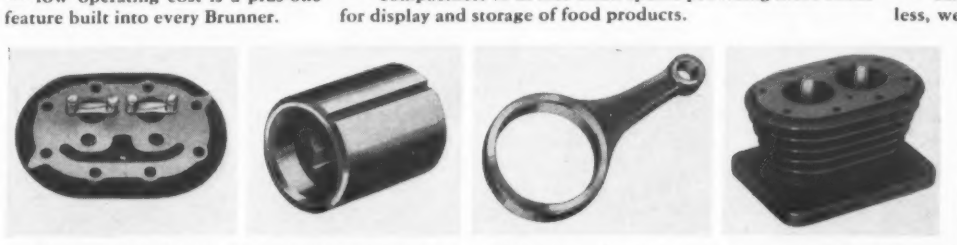
Now, more than ever, manufacturers of refrigerated show cases and coolers need and want commercial refrigeration condensers that provide continuous, dependable refrigeration. It means customer satisfaction to manufacturers and extra profits from reduced food spoilage to the merchant. Brunner condenser units are the answer. Not only does Brunner provide "top-flight" performance and dependability for years to come, but also assures low operating cost. Brunner carries the Underwriters' Laboratories approval and U. L. Seal. Available for ¼ to 25 tons of refrigeration. Brunner Manufacturing Co., Utica, N.Y., U. S. A.

1 TROUBLE-FREE performance at low operating cost is a plus-one feature built into every Brunner.

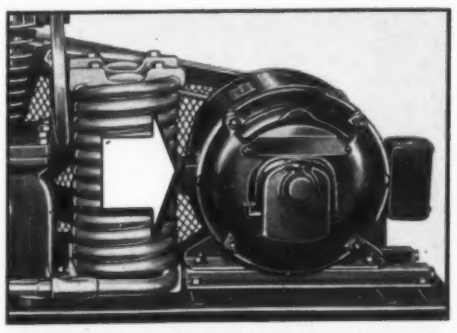


2 COMPACT—Brunner condensing units are designed for compactness to fit into small spaces providing more room for display and storage of food products.

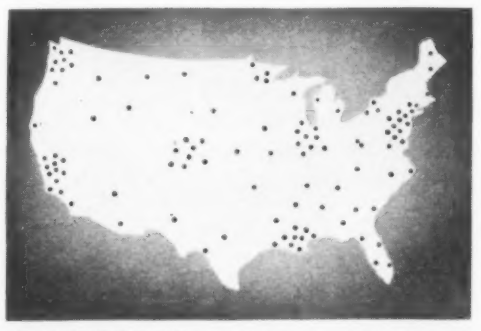
3 NO VIBRATION—Brunner units are designed and engineered by refrigeration experts for smooth, quiet, efficient performance. All moving parts are dynamically balanced for vibrationless, wear resistant service insuring long life and low operating cost.



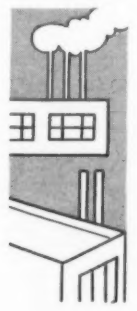
4 INTERCHANGEABLE—The all-in-one valve assembly, bronze bearings, silent eccentric drive and cylinder heads and other moving parts are precision machined and perfectly interchangeable with new parts permitting important savings of time and repair expense.



5 OVERLOAD PROTECTION . . . Automatic overload protection prevents motor from burning out. Permits continued refrigeration thus preventing food spoilage and profit loss to merchants.



6 EXPERT FIELD engineers are available for consultation and servicing of Brunner equipped units throughout the United States. They work out the right equipment to meet your demands.



How one manufacturer PROFITS WITH BRUNNER...

A well-known manufacturer of refrigerated display cases, who uses nothing but Brunner units, enjoys customer confidence and good-will because Brunner units are providing trouble-free performance at low operating cost in thousands of installations. In addition, Brunner's Engineering Service has saved many dollars by cooperating with him in working out the right capacity unit for the right job. Write for Brunner service and details.

GET THESE MONEY SAVING FACTS

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More on Plastics

WRITING editorials is something like living in a non-bomb-proof home in London. The imperturbable, brave-beyond-words English people go on living and working, day after day, night after night, never knowing when the lightning will strike. Weeks, even months, may pass by with nothing more untoward coming their way than a few splinters. And then, zowie! A direct hit leaves them sitting amongst a pile of scrambled bricks (still imperturbable, we'll wager!).

It's the same story with writing editorials. You study, you listen, you compare, you talk to people, you think, and finally you turn out one of these little articles. You wait, hopefully or perhaps fearfully, for some reaction. None comes.

Next week you work a little harder, delve a little deeper into your subject. Maybe two or three letters will trickle in, and a phone call or two. Still, you wonder if very many subscribers are reading the editorial page.

And then, lulled into a false sense of resignation which leads you to believe it doesn't matter much what you write, you turn out one that hits the jackpot. People call you, and keep calling you—some irate, some delighted, some curious, some anxious, some mystified. Letters roll in, and keep rolling in, until your correspondence falls behind.

Once again you get the idea that what's said on the editorial page is pretty darned important to a whale of a lot of people, and that you'd better weigh with extreme care what you publish on that page.

Appropriately enough, the editorial in the Jan. 1 issue of AIR CONDITIONING & REFRIGERATION NEWS, entitled "The Plastic Age Is Coming!" turned out to be one of those "jackpot" editorials. Nothing published in the NEWS since the editorial, "Declaration of Independence," in the May 29, 1940 issue has stirred up so many letters, phone calls, and visits.

Here are some of the high spots in the reaction to this editorial:

(1) Chief executives of three of the largest manufacturers in the industry have phoned;

(2) One of the nation's leading industrial designers, who is reputed to charge fantastic sums for his services, ran up a long-distance phone bill seeking further information;

(3) An association secretary wrote at length to tell us of the research in plastics being done by an active committee in his organization;

(4) Another association secretary phoned to ask if we "knew anything that was cooking" along the plastics line among his members;

(5) Executives of five different manufacturing concerns informed us "off the record" of what they were "cooking" for 1942 production;

(6) A considerable number of commendatory "do not print" letters arrived;

(7) A prominent parts manufacturer displayed a huge "blow-up" of this editorial in his booth at the All-Industry Exhibition;

(8) A well-reasoned, lengthy criticism came from a publicist in the enameling industry. His critical letter is printed on this page.

As to this criticism from the enamel man, one can only say that much of it *was* valid. Undoubtedly it has been wise policy to "go slowly" on the development of these materials of which we know so little. Undoubtedly there are still many "bugs" in the application of plastics.

But the time has arrived when this experimenting needs to be speeded up enormously. There is one big reason why everybody in the industry needs to be concerned with the rapid development of substitutes for metals in the industry's products. That reason can be summed up in one word: Priorities.

Already an impending shortage of aluminum is beginning to pinch the industry. Copper, zinc, and chrome shortages are expected. Plenty of steel is on hand *now,* but what will happen when all of Mr. Knudsen's mammoth new plants swing into production this summer?

We are reminded of the uproar caused by another "jackpot" editorial in the NEWS some 10 years ago. At that time the industry sales curve, for the only time during the industry's history, was beginning to turn downward. Grave concern was felt in many quarters. There was vague, gloomy talk about saturation.

The NEWS suggested that perhaps a radical approach to the design of household refrigerators was needed. One make looked like another. They still looked like iceboxes. Why not capitalize on the current craze for streamlining, and add new beauty and individuality to electric refrigerators? Why not sell them on eye-appeal?

Response to this suggestion was avalanchic. Critics pointed out the high cost of retooling; they called attention to the non-existence of presses of sufficient size for such gigantic stampings. Designing engineers evoked laughs with derision at the idea of streamlining (i.e., reducing wind resistance) a stationary object. (The concept was funny, at that.)

Nevertheless, cabinets were soon thereafter streamlined. The sales curve again turned upward, and swept up and up to heights previously undreamed of, with resulting speedy amortization of the new tools, and consequent savings in manufacture.

Foreign manufacturers, unable or unwilling to install the needed tools, were practically forced out of world markets by the streamlined American beauties. Within a year or two the industry had solved all the attendant problems; and as a result, one seldom hears "saturation" mentioned any more. Although millions and millions of refrigerators have been sold since that time, most people now agree that obsolescence induced by new eye-appeal will take care of the saturation bogey.

This publication, for one, is not worrying about what will happen to the refrigeration industry if-as-and-when the "defense" program invokes shortages of the metals it now needs. Substitutes will be found, if they are needed. They may not at first seem so satisfactory; but in time they effect such savings and improvements that the industry will get therefrom a new "lift" comparable to the one it received from the impetus of styled cabinets.

They'll Do It Every Time . . . . . By Jimmie Hatlo

IT HAS BEEN MOVED AND SECONDED THAT THE BOARD SHOULD APPROPRIATE $500000.00 FOR THE NEW ADDITION. ALL IN FAVOR SIGNIFY BY THE CUSTOMARY—
BANG
AYE!
AYE!
DITTO!
GOOD THING WE OUGHTA MAKE IT A MILLION.
YES-YES-UNANIMOUS VOTE.
THANK TO DONALD W. BROWN MUSCATINE, IOWA
OKAY, KID, WHAT'S NEXT?
1-34
BUT ON THE OTHER HAND
GENTLEMEN! WE CAN'T ARGUE HERE ALL NIGHT! DO WE OR DO WE NOT SET ASIDE $2.85 FOR REPAIRS TO THE FRONT STEPS?
THERE'S SOMETHING FISHY ABOUT THIS. THOSE STEPS WERE REPAIRED THREE YEARS AGO!
SOMEBODY'S GOING SOUTH WITH A LOT OF DOUGH AROUND HERE!
I QUIT! I RESIGN!
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LETTERS

'TAKE IT EASY ON PLASTICS'

"Better Enameling"
1427 S. 55th Court
Chicago, Ill.

Dear Mr. Taubeneck:

If we had never met George Taubeneck, or read any of his editorials, we would have been inclined—after reading the editorial "The Plastic Age Is Coming!" in the Jan. 1 issue of AIR CONDITIONING & REFRIGERATION NEWS—to feel that some manufacturer of plastics had a new stockholder. However, we have had the pleasure of making your acquaintance and of reading much of your writing, and believe that the probable fact is that this editorial represents a truthful exposition of your opinion based on personal observation.

Not being in any sense an expert on plastics or having made too extensive observations, this writer does not plan to be positive in any statements with regard to the comparative qualities of the products discussed in your editorial, but would like to discuss a few pertinent questions.

Under the heading **"Question: Must Refrigerators Be Made Out of Steel,"** you indicate that there is at least one plastic material 50% lighter, 50% cheaper, and 10 times stronger, and indicate that with the extensive use of a material such as this, shipping costs would be lowered, and breakage and chipping in transit would be eliminated; and, further, that plastic surfaces refuse to be chipped, scratched, or marred in use.

You use as reference Ford cars (running around the streets of Detroit) with undentable, unscratchable plastic fenders. You indicate further that it is your belief that proper study by refrigerator designers will result in "bold strokes of innovation, rather than timid tinkering."

Inasmuch as we are speaking of personal opinions in any case, we would like to indicate another opinion—that instead of the refrigerator manufacturers showing a "frightened interest" and "timid tinkering," they have retained in their policies a certain amount of sound conservatism. They undoubtedly realize the necessity of a thorough trial of the many "new things" and "innovations" which are handed to their designers almost daily as the logical answer to refrigeration cabinet problems.

We would all readily admit that little progress is likely to be made in any field without experimentation, but before time-tried and proven products can be readily scrapped on large-production assembly lines, the management in refrigeration or any other comparable industry knows that it is wise to not only conduct thorough laboratory tests on the new products, but widespread field tests as well.

No one would question the rapid progress made in the plastic industries, which has unquestionably resulted in a large measure from extensive research and development work, but on the other hand we believe that the plastics manufacturers themselves would be the last to make a blanket claim that this comparatively new industry offers the "best" for every application for which one of these materials has been tried.

If we were to take exception to any one point in your editorial, it would be the one to which most of us (except an expert on plastics) might be subject, and that is the broad generalization covered by the one word.

In a recent lecture by a representative of a plastics manufacturer, one of the principal points stressed was the wide variation in formula and processing technique in the plastics industry. It was stressed that the material and processing **and the resulting product** differed greatly. For instance, the manufacture of a ten-cent store drinking cup might be widely separated (in formula, processing, and resulting product) from the manufacture of a washing machine gyrator or a radio cabinet. It was stressed also that the cost of material and processing varies just as widely as do formula and processing technique. It is, therefore, my thought to point to the possible fallacy of comparing a material used for refrigerator door liners with a material used for the fenders of automobiles.

It is possible that the automobile fenders referred to are undentable and unscratchable. With this we are not familiar, but we have seen a section of a plastic refrigerator door broken quite readily over a man's knee as you would break a piece of kindling wood. And we believe that any blanket claim that all so-called plastic products are scratch-proof is in error. In the refrigerator field there are at least some instances where parts are fabricated, shipped to a manufacturer, and then coated in the plant with a synthetic enamel. In this instance the scratch resistance of the surface is most certainly no better than the resistance of the coating.

As far as cost is concerned, certainly there are plastic materials that are being sold for refrigerator parts at a comparable or even lower cost than for porcelain enameled steel. On the other hand, we believe investigation will show that many other grades or qualities of plastics (possibly those incorporating the qualities extolled in your editorial) do cost considerably more than porcelain enameled steel.

Another point of question would be the source of information for the editorial.

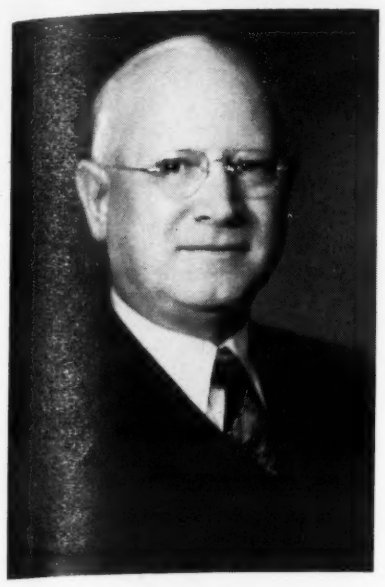
Some of us have taken the trouble to question retail salesmen (without comment or leading questions of any kind) concerning their opinion of refrigerators with plastic doors. We ask that you make a similar personal survey in your neighborhood if you want the opinions of **users.**

We have said much of the new. Now let's look at the chances for the conservative manufacturer who is using a porcelain enameled steel inner door. It is true he has a little added weight, but for this he gets a strong, rigid door that is scratch-proof (practically—not theoretically), that is free from buckling, rust corrosion or any other deterioration, and—most important—that cannot possibly be a **source or a retainer for odors** of any kind.

DANA CHASE, Editor

Distributor-Dealer Doings

Long-Time Leader



J. E. NORTH

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North Heads Cleveland League For 18th Year

CLEVELAND—J. E. (Jack) North was elected president of the Electrical League of Cleveland for his eighteenth consecutive term at a meeting of the league's board of directors here Jan. 13.

Mr. North is starting his twenty-second year as an officer of the league, having served two years as treasurer and one year as vice president previous to becoming president.

Two new vice presidents, H. H. Kennedy of Frigidaire Corp. and James A. Foukal, Sterling & Welch Co., were chosen, and two other officers, Harry Hutchisson, treasurer, and Ralph H. Jones, secretary, were re-elected.

In addition to Messrs. North, Kennedy, and Foukal, the board of directors is made up of: W. W. Adams, Westinghouse Electric Supply Co.; John J. Bohning, Geo. Worthington Co.; Harrison T. Coe, Higbee Co.; William S. Fell, Enterprise Electric Lighting Fixtures, Inc.; Homer G. Frank, Strong, Carlisle & Hammond Co.; Carl E. Fruehauf, Fruehauf Hardware Co.; A. F. Head, General Electric Supply Corp.; F. G. Hickling, Westinghouse Electric & Mfg. Co.; F. J. Hopperton, Elliott Electric Co.; F. R. Maguire, W. Bingham Co.; H. L. Martien, Martien Electric Co.; G. E. Miller, Cleveland Electric Illuminating Co.; A. L. Perry, Graybar Electric Co.; K. R. Schuele, Jr., Fries & Schuele Co.; E. F. Whitney, General Electric Co.

Wisconsin Power Men Sweep Heater Contest

NEW YORK CITY—Shooting at the prize money in Modern Kitchen Bureau's 1940 retail water heater salesmen's contest was—notably for Wisconsin Electric Power Co., Milwaukee—a one-two-three proposition.

First prize for the first half of the year's contest was awarded to the letter written by Carl I. Hellen, of Wisconsin Power; first prize for the fall contest went to Fred J. Wrobbel, also of Wisconsin Power; and grand prize for the year also went to Mr. Wrobbel, completing a triple triumph for the same organization.

R. P. Little, Northern States Power Co., Fargo, N. D., took second place in the fall contest. Winner of third prize was Fred S. Baker, Portland General Electric Co., Portland, Ore.

Other prize winners in this same competition included: Dave Ceale and E. H. Philson, Atlantic City Electric Co., Tuckertown, N. Y.; Charles Von Pressentin and H. C. Spiegelberg, Portland General Electric Co., Portland, Ore.; Edgar H. Dowson, United Illuminating Co., New Haven, Conn.; and Carl I. Hellen, Wisconsin Electric Power Co., Milwaukee.

New Westinghouse Dealer

WOODSTOCK, Va.—Paul W. McClanahan is the new Westinghouse dealer here.

Almand Is President Of Atlanta Group

ATLANTA—Joseph Almand, manager of the appliance department of Sterchi Bros. furniture store here, was elected president of the Atlanta Electrical Association at the recent meeting of the organization.

Robert B. Shelley of the electrical appliance department of Rich's, Inc., was elected vice president, and W. D. Alexander, head of the distributorship of that name, was elected honorary secretary of the association.

Dallas Concern Expands

DALLAS, Tex.—Bolin & Selvidge Furniture Co. has added 50 feet of frontage to its building here, and will use a large part of this added floor space for appliance displays.

Motor Power Co. New Bendix Distributor

ST. PAUL—The Motor Power Equipment Co. here has been named distributor of the Bendix home laundry for Minnesota, North Dakota, and western Wisconsin. F. M. Hutchinson is sales manager of Motor Power's major appliance department.

Factory officials attending the recent showing of the 1941 Bendix line here were: Vern Calkins, assistant sales manager; W. A. Decker, north central division sales manager; E. L. Doscey, service manager; and William Kemp, national manager of utility division meetings.

Mayflower Adds Warren

WASHINGTON, D. C.—Mayflower Equipment Co., 2333 Eighteenth St., N. W., has taken on distribution of Warren commercial refrigeration equipment in this territory. Thomas D. Fentress is owner of the company.

They Head Niagara Association

Seated: Raymond W. Mitchell, president, Electric Association of the Niagara Frontier; Merrill E. Skinner, retiring president. Standing: R. D. Glennie, E. T. Ball, vice presidents; Richard Wahle, treasurer; Weldon D. Smith, committeeman; S. S. Vineberg, secretary-manager.

Dust off inactive customer lists

Deepfreeze makes 'em LIVE prospects again!

Happy days are here again! Profitable days for home appliance dealers with the vision to see and the spark to act. For DEEPFREEZE—home unit for "quick-freezing" and storing frozen-fresh foods—gives American families a new luxurious way of living, for less than they've been accustomed to spending.

Deepfreeze creates a brand new major appliance market—opens a new opportunity for long profit sales and bankable cash profits. It appeals to every family desiring better tasting, more healthful foods and *lower* meat and grocery bills!

Deepfreeze { FROZEN-FRESH FOOD SAVER AND MEAT FREEZER

Deepfreeze has a barrel of sub-zero freezing and storage capacity—18 inches diameter by 30 inches deep (all actual primary freezing space)—ample room for a hind quarter of meat, assorted institutional size packages of frozen-fresh fruits and vegetables, and a commercial can of ice cream.

The freezing unit is the entire double wall surface of the food compartment — 24 square feet of primary freezing surface. Factory set to operate at zero and sub-zero temperatures regardless of room heat, Deepfreeze can be set to maintain cold as low as 20 degrees *below* zero.

New freezing principle gives maximum cold-making efficiency. Electricity consumption is about same as ordinary refrigerator.

Cash in ON THIS RICH VIRGIN MARKET

No Trade-In Worries! No Chain Store Competition!

Deepfreeze principles of construction and cold-making are exclusive and unique. No worthy competition exists to cut into profits or disturb price structure. Ask for your copy of our informative booklet: "Today's Opportunity for Appliance Dealers," that tells how you can sell your list of customers all over again.

Act Quickly— GET THIS BOOK NOW

Maybe your territory is still open. Do not delay in securing detailed information about this valuable franchise!

Deepfreeze Division Motor Products Corporation
2303 Davis Street, Dept. 60-AC, North Chicago, Illinois

Please send booklet: "Today's Opportunity for Appliance Dealers."

Firm Name.....

Street.....

Town..... *State*.....

Don't Build Too Big!

'Decentralized' Competition Held As Threat To Larger Locker Plants

MEMPHIS, Tenn.—Don't build too big—for if you do, competition will soon undermine your business and leave you with a plant full of empty lockers.

That's the warning which L. M. Barlow, commercial refrigeration manager of McGregor's, Inc., Frigidaire distributor here, issues to all locker plant owners, both present and prospective.

It is a mistake to build a 1,500-locker plant in the downtown district of any city, Mr. Barlow believes. For soon, he contends, such organizations as meat packing plants or food distribution establishments located in outlying districts will realize that a lot of potential business is being drawn away from their cash registers and down to this locker plant.

TROUBLE AHEAD

And when this happens, he predicts, these establishments will begin to build, in conjunction with their other business, small locker plants of their own, to which customers living in that area will logically come to save themselves the long trip to the center of the city.

Success of one suburban plant of this type, he points out, will mean that others in similar strategic outlying locations will follow suit, and the big downtown plant soon will find itself with a lot of empty lockers which it is unable to rent.

VOICE OF EXPERIENCE

Mr. Barlow's advice is bred of considerable experience in the locker field. Of the 32 locker plants now in operation in the McGregor territory of Arkansas, northern Mississippi, and the western tip of Tennessee, 28 were installed by Mr. Barlow and the McGregor organization.

All 28 have been built within the last two years. Five of these plants—at Fulton, Ky.; Harris and Ripley, Tenn.; New Albany, Miss.; and the famous Horseshoe Plantation in Arkansas—were completed during October and November of this year.

In line with Mr. Barlow's theories on locker plant success, all of these plants were located in rural or semi-rural areas, or on the outskirts of urban districts; none was very large. In fact, these five plants averaged approximately 175 lockers in size and $5,000 in cost. Most of them are operated in conjunction with some other business.

Pennsylvania Locker Group Applies For Charter

HARRISBURG, Pa.—The Pennsylvania Frozen Food Locker Association has applied to Dauphin County Court for a charter as a non-profit organization to "promote and advance the frozen food locker industry."

Directors and incorporators of the association are: C. L. Snavely, Lancaster; M. J. Harrington, Dushore; V. C. Patterson, York; Herbert G. Godshall, Lansdale; and H. Roy Eberly, Denver.

Milk Processing and Locker Plant Combined

McKINNEY, Tex.—Collin County Milk Products Co. has completed the building of a new $50,000 milk processing and locker plant here.

Michigan Locker Men To Meet Feb. 11-13 At State College

EAST LANSING, Mich.—Michigan locker plant owners and operators will convene at Michigan State College here Feb. 11, 12, and 13 for the two and one-half days of educational discussions and demonstrations, frozen food displays, and informal mingling which will constitute their second annual state conference.

A feature of this conference will be a session entitled "What My Lockers Mean To Me." During this period both farm and city patrons will present 10-minute summaries of their opinions of refrigerated locker service.

Commercial sales representatives also will be given an opportunity to voice their suggestions for the improvement of locker service. These speakers, too, will be limited to 10 minutes each.

FREE-FOR-ALL

Final session of the conference, scheduled for 11:15 a.m. on Thursday, Feb. 13, will consist of a free-for-all discussion in which anyone having any opinions to express on how the Michigan locker industry may be bettered will be given 5 minutes in which to do so.

A frozen food banquet set for 6:30 Wednesday evening, Feb. 12, will be followed by a business session of the Michigan Refrigerated Food Locker Plant Operators' Association, during which officers will be elected for the coming year.

Speakers at the banquet will include Ed. G. Squire of Shenandoah, Iowa, president of the National Frozen Food Locker Association, who will discuss the locker plant movement from a national viewpoint, and E. L. Anthony, dean of the Michigan State College school of agriculture, who will explain the services offered by the college.

LEGAL ANGLES

Legal side of the locker business will be covered Thursday morning, when "Laws Applying to the Operation of Locker Plants in Michigan," and "State Conservation Regulations for the Storage of Game," will be discussed. "The Collection of State Sales Taxes at the Locker Plant" also will be explained.

Remainder of the program will be devoted to discussion of and talks on the proper methods of selecting and preparing foods for frozen storage and the proper use of frozen foods after removal from storage. Faculty members of the college will supplement the roster of guest speakers.

Registration for the conference is scheduled to start at 9 a.m. Tuesday, Feb. 11. First conference session is slated for 10:30 that same morning.

Locker Briefs

MAYNARD, MINN.

MAYNARD, Minn.—C. O. Anderson has started construction of a 200-locker storage plant here. Contract for the plant was awarded to John Tyvold, of Maynard.

RICE LAKE, WIS.

RICE LAKE, Wis.—C. O. Balcomb, Foster, Minn., is erecting a cold storage locker plant here.

'Hoof To Chop' Service

Built flush to the wall of the locker room is the fast-freeze cabinet (right) used by the Asman Meat Market.

* * *

Asman Market Offers Three Locker Sizes

MARYSVILLE, Ohio—Installation of a 200-locker cold storage plant has made it possible for the Asman Meat Market, which has been serving residents of this community for three-quarters of a century, to offer a complete "hoof to chop" service.

Under this system the firm's stock truck picks up from farm homes in the vicinity the animals to be butchered. The market then handles the cutting and dressing in its own plant and stores the meat in the owner's locker.

Lockers are arranged in tiers which are five units high. Three sizes of lockers are used. Door units are available in either 20 x 30 x 17 inches or 20 x 30 x 20 inches, while drawer lockers measure 24 x 30 x 18 inches.

PLATES FOR FREEZING

The fast-freeze cabinet, an H-M unit, is built flush to the wall. It is equipped with six plates providing 60 sq. ft. of freezing contact at temperatures as low as —40° F.

Both lockers and freezer are cooled by a Frigidaire 3-hp. water-cooled "Freon" compressor. A well was drilled on the premises to provide 160 gallons of water per hour for this unit.

Facilities were already available in the shop for aging and chilling rooms. Exposed walls were insulated with 8 inches of cork, and inside walls were insulated with 6 inches of the same material.

The installation was handled by R. L. Hunter of the commercial refrigeration department of L. R. Krumm Co., Frigidaire distributor in Columbus, Ohio. Although the Krumm firm operates its own engineering service, the job was supervised by the engineering department of Frigidaire's headquarters at Dayton, Ohio.

Only 115 lockers were installed at first, but these were rented within six weeks and the remaining 85 units were installed to handle additional demands for space.

The Asman shop was founded in 1865 and is still owned within the family. Present operator is Walter C. Asman, who has conducted the business for the past 20 years.

Missouri Adds Twelve Plants In One Year

ST LOUIS—From almost no locker plants in Missouri to a dozen installations in one year is the story of locker plant promotion by the commercial refrigeration department of the Frigidaire division office here.

Among six new plants recently opened in Missouri under supervision of John Tenge, commercial refrigeration manager, are the S. & S. Cold Storage Locker Plant, Jefferson City, Mo., with 312 lockers, which was opened the first of September; the Fagan Produce Co., Balmira, Mo., 120 lockers; and the Hulen Home Kill Meat Market, Mexico, Mo., a 300 locker plant completed late this autumn.

Others are Scott Cochrane Co., Greenfield, Ill., a 200-locker job, and Frozen Lockers, Inc., Kennett, Mo., operated by Adolph Riggs.

Most important point in 1940 erection of locker plants, Mr. Tenge indicated, is the fact that the larger number of plants are being built in conjunction with some other business, either meat markets, vegetable distributing agencies, or warehouses. Plans for 1941 include a "Locker Plant Clinic" made up of refrigeration service engineers cooperating with Frigidaire, and a concerted sales drive on semi-rural cities in middle Missouri.

Three State Locker Groups Join National Association

DES MOINES, Iowa—Three new state locker groups recently were added to the membership rolls of the National Frozen Food Locker Association when the Texas, Tennessee, and Tri-States groups voted to affiliate with the national organization.

Two York Compressors Cool 500-Locker Texas Plant

SHERMAN, Tex.—Installation of refrigeration equipment in the new 500-locker frozen food storage plant opened here by Nolan Jackson and associates, who also operate plants in Denison and Wichita Falls, Tex., has been completed by Dallas Air Conditioning Co., Inc.

Two 4 x 4 York compressor units working with a 7½-ton ammonia plant furnish the refrigeration. Pipe coils are employed throughout, except in the quick-freeze compartment which was equipped with Dole plates.

200 More Lockers

NORTHFIELD, Minn.—W. E. Johnson & Co. plans to install 200 more lockers in the plant which it operates here.

For Performance and Economy

MARLO INDUSTRIAL COOLERS

Available in a complete range of sizes — 15 models.

One single motor drives pump and fan. Bearings are self-aligning, mechanically sealed. Corrosion-safe wheels and scrolls.

SPRAY and DRY COIL types finned and bare pipe surface.

Our new bulletin 403 illustrating the proper method of selection for controlled humidities and temperatures is yours on request.

MARLO COIL COMPANY
6135 Manchester Ave., St. Louis, Mo.
Refrigerating Equipment Manufacturers

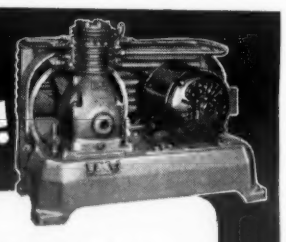
★ ★ ★ ★ ★ ★ ★ ★ ★

MILLS MIGHTY REFRIGERATION

Mills Condensing Units
By Mills Novelty Company
4100 Fullerton Ave., Chicago, Ill.

★ ★ ★ ★ ★ ★ ★ ★ ★

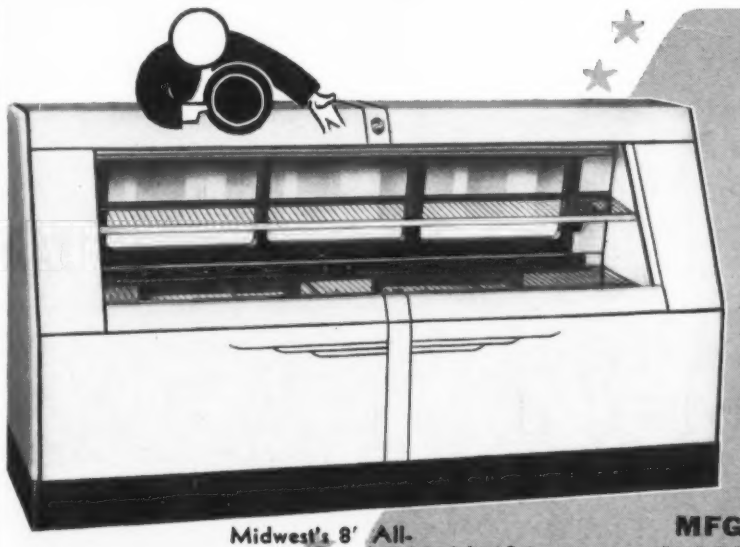
EASY TO SELL!



More than 20 years of high reputability...in every kind of refrigeration service...has established the name "Lipman" as a BUY word that breaks down sales resistance. Make this reputation your sales asset . . . for greater profit and better customer satisfaction.

Lipman

GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-1 Beloit, Wisconsin

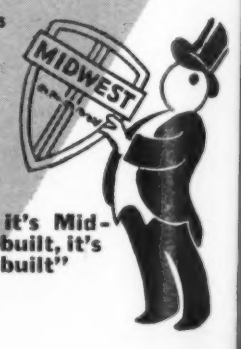


Midwest's 8' All-Porcelain Model MC-8

YOU CAN CASH IN ON THESE Sensational DISPLAY CASE VALUES

Now—with Midwest's volume production *again* expanded—prices are arranged to make these beautiful, quality-built display cases greater values than ever! That means they're even *easier* to sell! Two lines—all-porcelain DeLuxe line and Leader line with Dulux exterior—fill every need. Write at once for full details.

Midwest
MFG. COMPANY • GALESBURG, ILLINOIS
EXPORT DIVISION, MERCHANDISE MART, CHICAGO

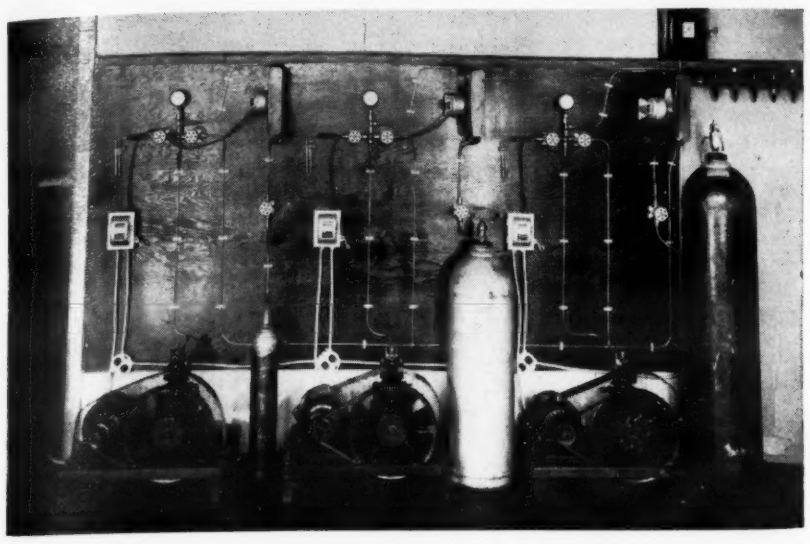


"If it's Midwest-built, it's better built"

Equipment For a Rebuilding Plant
5. Refrigerant Reclaiming Board

Editor's Note: This description of a refrigerant reclaiming board is the fifth of a series of articles to be published in AIR CONDITIONING & REFRIGERATION NEWS on the special equipment used by Associated Refrigerator Plant, Inc. in its re-building of household refrigerator units. These articles will describe equipment that any service man can make in his own shop.

Reclaiming Board For 3 Refrigerants



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By Edward M. Siegel, Associated Refrigerator Plant, Inc., Philadelphia

The simple reclaiming board which we have constructed for the purpose of reclaiming "Freon-114," methyl formate, and sulphur dioxide from household refrigerating units is shown in the accompanying photograph.

The drums for these three gases may be seen from left to right in the picture. These three systems are identical and the line hookup for any one of them is shown in the drawing.

In the photograph may be seen the mercury manometer which is used for reading inches of vacuum in the system. While the gauge at the top of the photo is a compound gauge it is not accurate and the manometer is used.

This manometer may be valved out of the system when there is a positive pressure in the lines.

Operation of the system is quite simple. Both valves Nos. 1 and 2 are opened, the drum valve No. 3 is closed, and the unit valve No. 4 is closed. The evacuating pump is started and a high vacuum drawn on the system.

Valves Nos. 1 and 2 are closed, valves Nos. 3 and 4 are opened, the evacuating pump is shut off, and the reclaiming pump started.

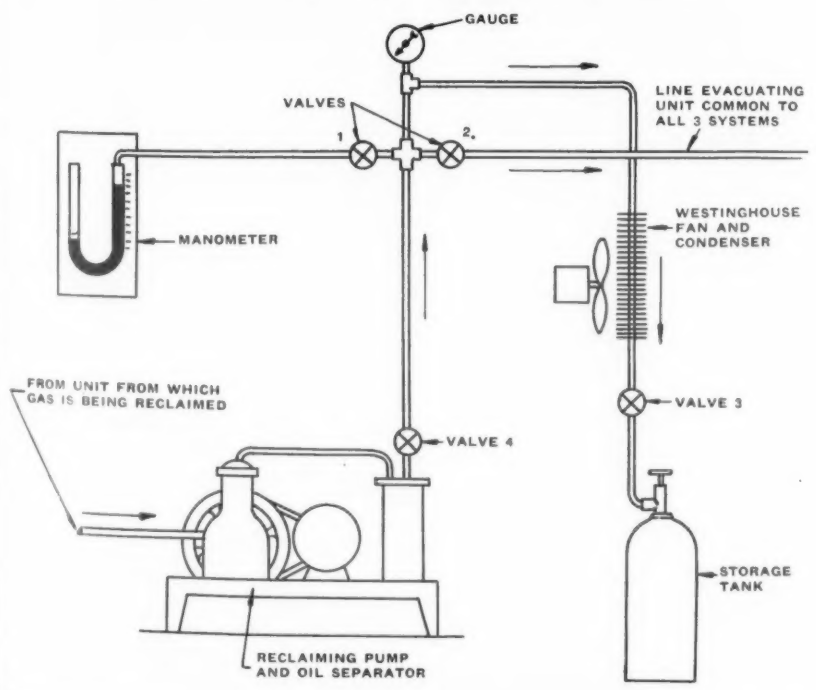
This reclaiming pump is merely a ¼-hp. G-E compressor with the condenser removed but the receiver still in place. The gas to be reclaimed is drawn through the receiver and pumped through the condenser and runs down into the drum as a liquid.

The receiver on the reclaiming unit acts as an oil trap and the gas which is reclaimed is quite pure.

Evacuating pump lines are common to all three reclaiming systems but each one, of course, has its own reclaiming pumps.

These systems have worked very satisfactorily and have saved us a considerable amount of expense in the purchase of these refrigerants.

Line Hookup For Reclaiming Unit



Truck Refrigeration—Stuck In the Mud? New Ideas Needed, Coast RSES Told

LOS ANGELES—Election of officers and a talk by an auto body builder who urged refrigeration engineers to free themselves from convention and to start thinking along boldly different lines were features of the recent meeting of the Los Angeles chapter of the Refrigeration Service Engineers' Society at Scully's Cafe here.

Speaker of the evening was Mr. Baker of Advance Auto Body Works. He outlined some of the problems encountered in truck refrigeration and discussed the methods which his company had used to overcome them.

One major difficulty, Mr. Baker declared, lies in the fact that there is no unified action in the presentation of specifications for bodies, nor as to the actual sort of refrigeration which is needed in these bodies for the preservation of specific types of produce to be hauled.

Furthermore, he complained, the man in the field expects the man in the office to solve this problem, and vice versa—so that as a result nobody does anything about it.

Mr. Baker suggested that all refrigeration engineers cooperate in the formulation of specifications, so that a reasonable standard may exist as it does in the commercial refrigeration field.

Mr. Baker also made the challenging statement that comparatively little change has been made in refrigeration over a period of many years, except for "streamlining."

We need to depart from convention, to start thinking along different lines, to stop judging possibilities by that one question "Has anyone ever done it?" the speaker declared.

"The same situation exists in refrigeration that is found in the automotive field," Mr. Baker pointed out. "Engineers work on refinements of little things, while the motor remains as inefficient as it was before, and any trifling efficiency gained in the refinements is lost through the exhaust.

"The public has been educated to refrigeration and the market is here. We may think we've developed it when we've really only just skirted it."

Referring to a mobile unit which his firm has developed—a combination of compressor and absorption systems in which the most efficient elements, rather than the weakest, were joined—Mr. Baker expressed a belief that for the next few years a bigger opportunity for development lies in the comparatively long-obsolete absorption field than in that of compressors.

Officers elected were: president, W. E. Young, service manager, Price Bros.; first vice president, W. C. Irving, Sr., Bill Irving Refrigeration Service, Santa Monica; second vice president, C. O. McClellan, service manager, Sears, Roebuck & Co.; secretary-treasurer, Frank Gillett, who has terminated his own business and joined Refrigeration Supplies Distributor; sergeant-at-arms, W. L. Flewelling, W. L. Flewelling Co., North Hollywood.

The new board of directors includes: W. W. Allison, Allison Refrigeration Service; J. C. Rodgers, Peerless Refrigeration Service; J. H. Underwood, Refrigeration Service, Inc.; A. C. Line, Electric Motor Repair; Paul Kiefer, O'Keefe & Merritt.

J. C. Blair, instructor in refrigeration and air conditioning at the Frank Wiggins Trade School, was renamed chairman of the educational committee. Frank Gillett was named the chapter's delegate to the society's national convention in Chicago in January, with L. P. Roth of Refrigeration Service, Inc. as alternate.

Further development of the contractors' committee, which plans round table discussions of problems of particular interest to dealer members was announced by Bill Allison, chairman.

Hainsworth To Address Pittsburgh ASRE

PITTSBURGH—Dr. W. R. Hainsworth, vice president of Servel, Inc. in charge of engineering, will speak on "The Search for an Air Conditioning System" at the meeting of the Pittsburgh section of American Society of Refrigerating Engineers in the Roosevelt hotel here Feb. 7.

Dr. Hainsworth will outline the study which led to the development of the hermetically sealed lithium chloride absorption unit for air conditioning applications.

Gemloid Corp. Establishes Office For Detroit Area

DETROIT—Gemloid Corp., custom molders and manufacturers of decorative plastics, has established sales and design representation in Michigan with headquarters in the Boulevard building here.

Franklin W. Murray has been appointed sales representative in collaboration with Lawrence H. Wilson, Detroit industrial designer, as a stylist, to promote the use of Gemlite and Gemloid injection moldings in the automotive, refrigerator, allied, and specialty fields.

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Wanted: Ideas . . .

Research Man Can Keep In Step By Following Salesman's Tips

Value of Coordinated Effort Stressed By Goodman At ASRE Conference on Selling

CHICAGO—The sales department can be a prolific and valuable source of ideas for new products and improvements in existing products, William Goodman, director of research for the Trane Co., LaCrosse, Wis., told the recent Conference on Refrigeration Selling, sponsored by American Society of Refrigerating Engineers during the All-Industry Exhibition.

In outlining the development engineer's part in the sale of refrigeration equipment, Mr. Goodman made the point that most of the so-called "new inventions" are in reality the result of a series of relatively minor improvements.

"The suggestions of the sales engineer are highly important in development work," Mr. Goodman said. "The ability of a salesman to ferret out the wants of his customer is not only highly important in producing new sales for himself, but also in producing new ideas and new products for the company that he represents.

"Although suggestions for desired improvements frequently do come from the sales department, the sales department is even more important in providing the background from which the development engineer draws inspiration for new ideas and improvements.

"Primarily it is every manufacturer's desire to provide his customers with the exact equipment needed to solve their problems. The ordinary procedure, of course, is to apply existing equipment to the problem—a simple practice that many of you have followed thousands of times in your career. The sales engineer must be skillful enough to apply existing products to the needs of his customer. However, where existing products cannot be applied efficiently, new equipment must be considered.

NOT AN EASY JOB

"In the actual situation, if equipment is to be sold at a reasonable price, it must be made from a standardized design with some attempt at quantity production. In this case, it sometimes becomes quite a trick to design a line of equipment that will meet the varying needs of a scattered number of different customers. This is the function of the development department. Actually, the product of any manufacturer is the result of combining the sum total of all the consumer demands.

"The development of unit air conditioning equipment is a good case in point.

"Several years ago the air conditioning equipment available was complex, difficult to install, and required considerable space for its installation. Moreover, the services of a competent engineer were frequently required to operate an air conditioning plant successfully. From the welter of ideas, it was plain to see that customers and sales forces needed equipment that would be easy to install and simple to operate. Logically, this called for complete air conditioning units, with all of the skilled work done in the factory under close supervision.

"In improving existing products, the sales engineer is usually on the lookout for what may be called 'sales advantages' — eye-catching improvements of a type most likely to appeal to the consumer. Frequently these take the form of conveniences of one kind or another which make the product more convenient to use, which widen its field of usefulness, or which make it easier to install.

"In addition to such improvements, there is another highly desirable group. This group is concerned with a reduction in the cost of the product. Frequently it is possible not only to lower the cost of a product, but, at the same time, to improve it.

"Changes which result in the simplification of a product frequently not only lengthen the life of the product, but also make it more trouble-free. At the same time, such highly desirable simplifications usually lower the cost.

"No idea, good as it may be, can be incorporated into a new product unless it is economically feasible to do so. If the development engineer were freed of the handcuffs of the bank account, he could allow his creative ability free rein. But the criterion of a successful development engineer is his ability to incorporate new ideas into the product with the means at hand and without bankrupting his employer.

"Many of you have undoubtedly submitted to your sales manager new ideas suggested by the problems of your prospects. Some may have been used to open up new avenues of sales activity for you. Others may have looked perfect to you, but have nevertheless been received and acknowledged by the home office, and then promptly forgotten.

THE RESEARCH SIDE

Concluding its report on the A.S.R.E. Conference on Refrigeration Selling, the NEWS this week presents the "research side" of the story—how the development department can use the sales department as a never-ending source of new-product ideas—as told by William Goodman, research director for the Trane Co., plus comments by discussion leaders on the ideas advanced by David C. Prince and Luis Gibson, whose talks were reported in last week's issue.

"That doesn't necessarily mean that those suggestions were worthless. Perhaps the development department has never even seen the suggestion, because the sales manager has decided that the suggested improvement is of such a nature as to appeal to only a very limited number of prospects. In other cases, the bugaboo of high cost has made their use impossible.

"Occasionally, cooperation between the sales and development departments is not all that it should be. The technical man sometimes regards the abilities of his sales brothers too lightly. A proper respect for the abilities of the sales department is of tremendous value in constantly bringing a stream of new and worthwhile ideas from the sales department to the development department.

OPEN MIND NEEDED

"An open-minded attitude on the part of the development department will greatly increase its value to the company. An eagerness to explore every new suggestion to its logical end will frequently produce a number of worthwhile ideas.

"It is important to recognize that new products can be developed, and existing products refined, only through systematic and continuous research. By far the greatest number of problems solved in commercial invention laboratories come from sales, production, maintenance, service, and other departments, so that most modern inventing literally is done to order.

"The sales engineer who is constantly on the alert for new ideas will benefit not only the company with which he is associated, but he will also benefit himself directly. Improved products at a lower price and a steady stream of new products will mean greatly increased sales. We have seen this demonstrated over and over again in the growth of our own company.

"Ideas from the sales force need not be complete and worked out to the last detail. All that is needed are simply suggestions. I cannot urge you too strongly to be constantly on the alert for such ideas."

NEED FOR BETTER TRAINING EMPHASIZED

Necessity of training field men in both sales and engineering, and of tieing-in field servicing work as an integral part of the sales and development program, were two major points emphasized in discussions following the papers by Mr. Prince and Mr. Gibson.

The need for properly trained technical salesmen was stressed by L. H. Roberts, of Fairbanks, Morse & Co., who declared that the average small dealer's only hope of keeping his head above the financial waters was to have a staff of men who could do both selling and applications engineering. While many manufacturers have issued applications manuals designed to fill this need, most dealers do not understand how to make proper use of this material, Mr. Roberts asserted.

One answer, the speaker said, is for manufacturers to devote more time to training their better accounts in application engineering. Lacking this service, mortality even among good dealers in the air conditioning and commercial field has been "terrific," he declared.

DISTRIBUTION'S PART

In reviewing the part of the distributor in the present merchandising system, Harry Alter, of Harry Alter Co., Chicago, made the point that distribution costs on a specialty item requiring intensive promotion are necessarily higher than on a product which enjoys wide popularity and has a large sales volume.

Final price of some products, he said, must be amazing to the development engineer who has no conception of the costs involved in getting into the hands of the consumer.

There has been much talk of eliminating the distributor and selling direct to the retailer, or even of doing away with the retailer and selling direct to the consumer, Mr. Alter said, but neither of these methods have proved the answer to the problem, although both have been tried by some companies at one time or another.

Surest way of lowering ultimate cost to the user, Mr. Alter said, is to make more effective use of advertising to increase dealer acceptance and widen public demand for the product. If sales resistance is lowered, the merchandise will flow more freely, he declared. This in turn will lower sales costs, so that a smaller margin of profit is required by both distributor and dealer—and the cost to the consumer will be proportionately reduced.

DON'T FORGET SERVICE

Importance of the service engineer in helping to create and maintain public acceptance of and confidence in refrigeration products was emphasized by Claude A. Brunton, of Huntington, W. Va., a past president of Refrigeration Service Engineers Society.

Pointing out that "refrigeration, in any branch, is a life study," Mr. Brunton stressed the necessity of recognizing service as too often being the "missing link" in the manufacturer-to-consumer chain, and the importance of pre-planning products so that they would be more accessible for servicing in the field.

Among improvements that would make for easier servicing, Mr. Brunton suggested a belt-tightening device which would cut the servicing cost when answering such a call; the placing of service valves at strategic points on equipment, to eliminate the discharging of refrigerant into storage drums and recharging into the system when servicing was completed; and the placing of service valves in the heads of compressors which require the removal of the compressor head before the body is removed for service, which leave the body exposed to atmospheric conditions and place added strain on the discharge line, due to weight of the compressor head.

While these added servicing accessories many increase production costs slightly, they would be more than repaid by the goodwill they would create in reducing future service costs, Mr. Brunton declared. From a strictly sales viewpoint, he said, it will pay the engineering department to work hand-in-hand with the service department in the development of new equipment. Field servicing problems often can be met and solved before the product leaves the factory, Mr. Brunton pointed out, and the service man can take his rightful place as a real merchandising force.

SELLING AT A PROFIT

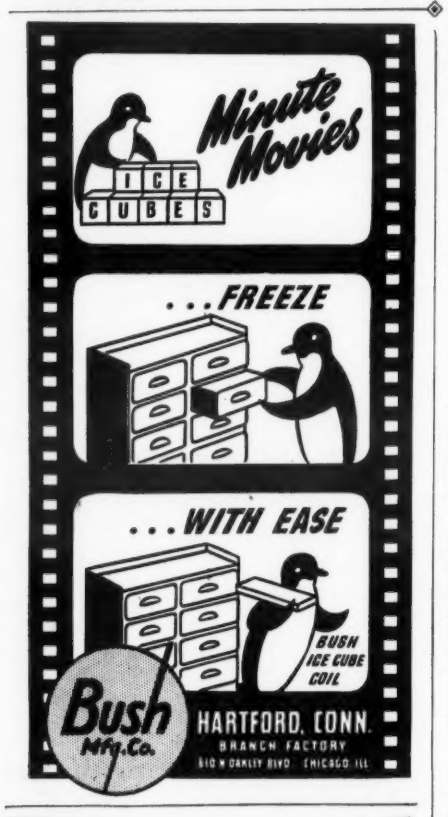
Recognition of the relationship between engineering and selling is the answer to making a profit in the refrigeration business today, declared E. A. Terhune, sales manager of Servel's electric refrigeration and air conditioning department. Quality may be present in the product, he asserted, but profits will not follow unless the salesman is able to transmit that "quality story" to the prospect.

"The average buying public does not clamor for these terms. Instead of emphasizing the quality of the merchandise or the superiority of the service, the retailer too often stresses terms as a lure to attract the customer.

The consumer buys ideas, not merchandise, Mr. Terhune declared—and it's the salesman's job to get across those ideas by visual demonstration so that the prospect "sees" the quality of the product over the price he has to pay for it. It is this kind of selling that puts profits in refrigeration, Mr. Terhune declared, and the industry could use a lot more of it today.

In his summary, Dr. Dameron emphasized the need for combination engineering-business men in industry today. Universities have many calls for such men, he asserted, but up to now the supply has been very scarce.

Even in a sellers' market, such as is the case today, there should be no let-up in development of ideas, training, or efforts to coordinate engineering and selling, he urged. In fact, a situation such as exists at present is the ideal time in which to concentrate on such efforts, he declared—for then there will be no bankruptcy of ideas when the slack-period does come.



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Operating and Service Methods For Dry-Expansion Counter Freezers

By Arch Black and Dean C. Seitz

Editor's Note: This is one of a series of articles on the servicing of counter-type ice cream freezers, which have been appearing in the issues of AIR CONDITIONING & REFRIGERATION NEWS in the past few months.

Checking Performance On the 'Freez Master'

Set the thermostat at normal and allow the compressor to cycle three or four times, then check mix compartment temperature and suction pressure. The freezer expansion valve (with methyl chloride) should be set for 10 lbs. or with "Freon-12," 14 lbs. The mix compartment expansion valve should be set for methyl chloride at 5 lbs. or with "Freon-12" 8 lbs.

These are normal pressures and it is not recommended to change any valve settings unless they are more than 1 lb. plus or minus from normal. In the event that expansion valve should be adjusted, do so by the stem under the rubber cap. Turning the stem in (to the right) raises the suction pressure by opening the valve farther.

Check the freezer solenoid valve with the timer control set at "off." Turn the thermostat to its coldest position and allow the compressor to cycle at least three times on the mix compartment. This will pump out all the refrigerant in the shell and line from the freezer solenoid valve.

Completely melt any ice in the freezer and allow a few drops of water to stand in the shell. If the solenoid is leaking, drops will freeze when the compressor next runs for the mix compartment.

Check the freezer refrigeration during the freezing of a batch of mix (see operating instructions).

Check suction and head pressure during freezing. The suction pressure has been given above and head pressure with methyl chloride should be in the neighborhood of 80 lbs. and with "Freon-12" 90 lbs. In an 80° room methyl chloride at 120 lbs., and "Freon-12" at 140 lbs.

Compressor low-pressure control should be set to cut in with methyl chloride at approximately 2 lbs. and cut out at 6 inches of vacuum. With "Freon-12" it should be set to cut in at approximately 6 lbs. and cut out at 4 inches vacuum.

The suction line to the compressor should be cold but without any frost although a little frosting may occur when the mix is nearly frozen.

Note. If both freezer and mix compartment solenoid valves are open at the same time, the mix compartment expansion valve will not open. All refrigeration is taken by the freezer and suction pressure corresponds to the setting of the freezer expansion valve.

Los Angeles Firm Moves

LOS ANGELES—Home Appliance Co., owned and operated by F. W. Rose, has moved from 505 West Eighth St. to 728 South Grand Ave.

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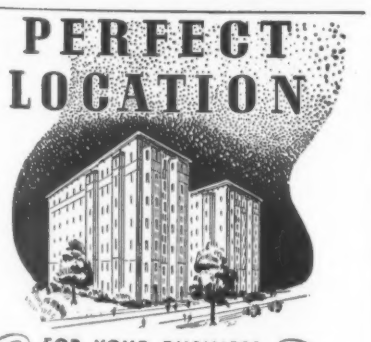

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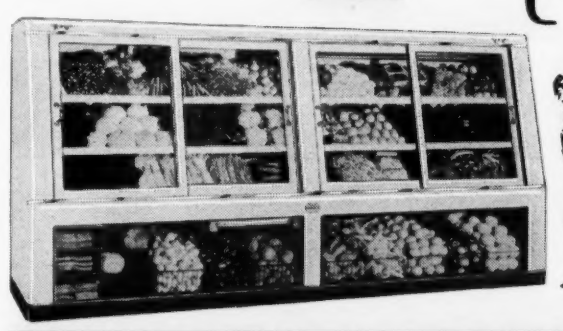

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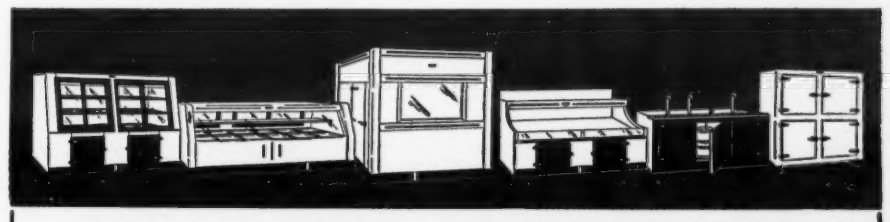

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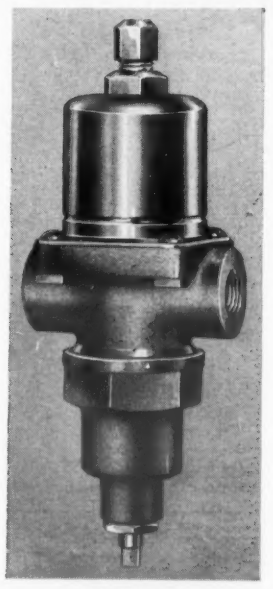

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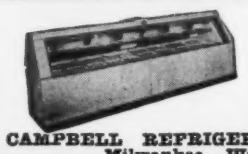
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Du Pont Doubles Size Of Neoprene Plant

DEEPWATER POINT, N. J.—Construction of a further addition to the neoprene plant here has been started by E. I. du Pont de Nemours & Co., supplementing a plant addition of the same size which has just been completed.

Together, the two additions to the neoprene plant will increase its capacity by one million pounds a month, raising the total production facilities to one and one-half million pounds a month, six times the capacity available last year.

The new facilities are aimed to supply the increasing demands for neoprene in the household and consumer field, as well as growing requirements in industrial uses.

Radiant Heating Medium Governed By Type and Construction of Building

Warm Air, Hot Water, Steam or Electricity May Be Used To Warm Radiating Surfaces

By Henry Knowlton

Designers of radiant heating systems have successfully used warm air, hot water, steam, and electricity as heating mediums. While the "modern" systems originated in England before the World War, T. Napier Adlam points out that the Romans constructed their hypocaust systems some 2,000 years ago. In these systems the smokeless fumes from charcoal fires were allowed to circulate through channels formed in the floor and walls of buildings. The warm surfaces of the walls and floor gave them all the heat that was required, and the original floors and flues still exist in the ruins of Roman buildings.

In the development of a radiant heating system for the new Cathedral in Liverpool, England, Mr. Adlam used an adaptation of, and improvement on, the Roman principle. This system circulates warm air, created by a direct-fired heater, through channels in the cathedral floor. The air system is entirely sealed, so that no heated air can escape into the building.

Mr. Adlam reports that "the base, or under floor is virtually a concrete raft, which extends throughout the nave, chancel, north and south trancepts, and this forms a base for the circulating flues. Concrete divisional walls about 2 inches wide by 12 inches deep and 10 inches apart, were built up from the concrete base to form supports for the floor proper, and the channels between these divisional walls are connected up alternately to the main warm air flow and return ducts." The flow of air was carefully proportioned throughout the floor.

"Slate slabs about 6 feet x 3 feet and 1¼ inches thick were laid on top of the divisional walls, leaving each flue, or channel, with a net area of 10 by 12 inches. The slabs supported in this way were sufficiently strong to support any possible weight, while on top of the slate slabs were placed white marble slabs about ¾ inch thick. These marble slabs were bedded down with concrete to form the finished floor of the cathedral."

Thus the whole floor became one large radiator, and this is reputed to be the largest single radiator in the world.

"There are a few items of interest," Mr. Adlam continues, "which are worthy of special notice. The height of the cathedral inside is about 113 feet and the triforium walking way is carried along both sides, at a height of 97 feet above the floor, making it possible to make very accurate observations of air conditions at high level.

"When the temperature of the air taken at 4 feet above the floor was 60° F. it was found that the air temperature at the triforium level, more than 90 feet above, was 58½° F.—just 1½° lower than at a point 4 feet above the floor."

Mr. Adlam points out that no other type of heating could create such ideal conditions in such a high building, and observes that because of the absence of down drafts, candles on the altars never flicker, as they do in most churches.

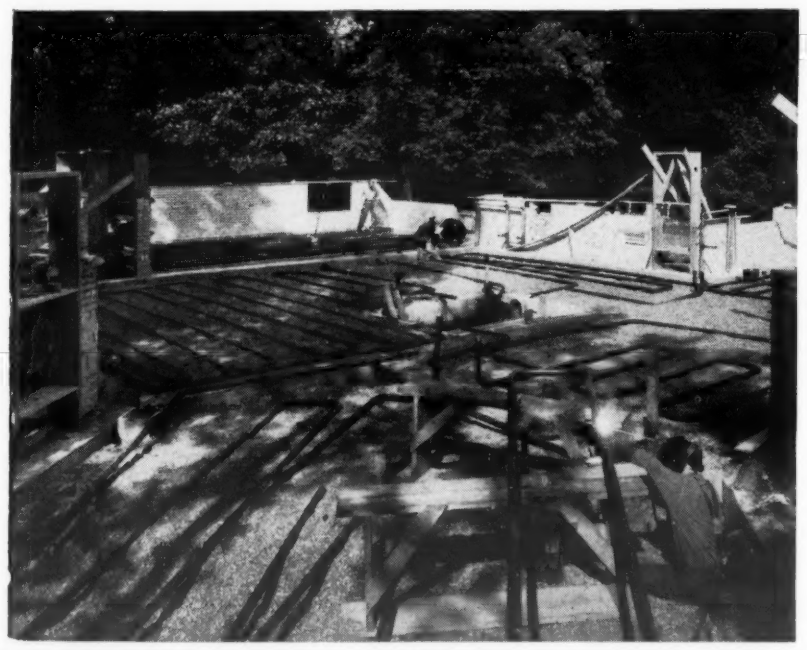
Because of the thermal storage of the building, it was found that the oil-fired furnaces only had to be operated a few hours a day to keep the cathedral comfortable during the winter season.

A somewhat similar system, but using steam as the heating medium, was designed by Father Michiel of Belmont, N. C., for St. Mary's Church at Wytheville, Va. The past two winters have been unusually severe for this vicinity, with temperatures as low as minus 2° F., but the system is said to have operated in a satisfactory manner.

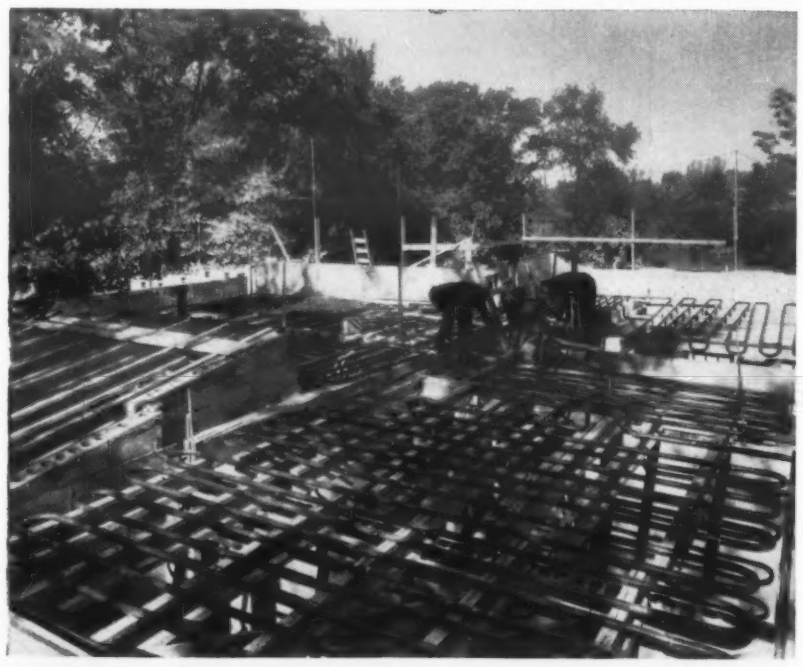
In this installation eight supply lines, carrying 15 lbs. of steam, were

(Concluded on Page 15, Column 2)

Concrete Floor Construction



Twelve hundred feet of 2-inch wrought iron pipe were used to heat the first floor of the C. M. Stanley residence at Muscatine, Iowa. The pipe was laid in a gravel bed and then became an integral part of concrete floor.



This illustrates the application of 1¼-inch iron pipe to the concrete joist construction used on the second floor of the Stanley residence. Pipe coils were laid perpendicular to the joists before being embedded in the "tin-pan" concrete construction.

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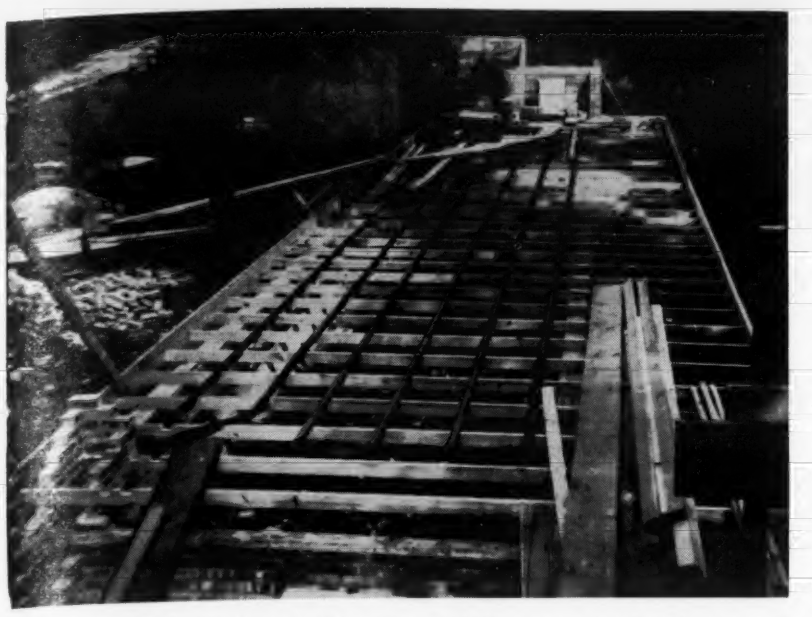
Wrought Iron Coils Installed in Notched Wood Joists



These illustrations of the Lloyd Lewis residence at Libertyville, Ill. are typical of one method of applying a radiant heating system to a wood frame residence. Floor joists were first cut lengthwise, notched, and then returned to position after the pipe coils were installed. Frank Lloyd Wright designed the building.

* * *

Radiant Job Serves Wood Frame House

(Concluded from Page 14, Column 5)

run from a central control point in the sacristy to supply headers along one side of the building under the floor. Return headers ran very close to the supply headers, and five hairpin coils of 1¼-inch pipe ran from each supply header across the church between open work floor joists, and back to the return headers. The supply side of each loop was just above the return side—the hairpins were set on edge.

Reinforcing bars were placed over the open joists on metal lath and a 2-inch concrete floor slab was then poured, and troweled to form the finished floor. Flattened brass tubing expansion joints were laid across the church to divide the floor into 8-foot sections and ½-inch Celotex strips were laid along the side walls to provide for expansion.

Wire lath was also secured to the lower surfaces of the joints, and covered with 1½ inches of cement plaster. Thus the steam coils warmed the air between the joists and this air warmed the concrete floor. It, in turn, radiated heat to the room.

The open work joists also permit air to circulate from grilles in the sanctuary steps at one end of the building to grilles in the vestibule walls at the other end, placed 8 feet above the floor.

Perhaps the most common method of applying radiant heating to a building, if any could be said to fall in that category with the limited experience that exists at the present time, is the use of iron pipe coils embedded in a concrete floor. Such a system was installed in the residence of C. M. Stanley of the Stanley Engineering Co., Muscatine, Iowa.

Mr. Stanley designed the system himself, using 1,200 feet of 2-inch wrought iron pipe on the first floor, laid in gravel under the concrete first floor slab. The same amount of 1¼-inch pipe was used for the second floor, laid perpendicular to concrete joists to become an integral part of formed concrete floor construction. Construction details are illustrated on the opposite page.

Naturally, with the great majority of homes built in this country being of wood frame construction, the question arises as to the advisability of using radiant heating in a building of this type. During the summer of 1940 Frank Lloyd Wright designed a home for Lloyd Lewis, a contractor, at Libertyville, Ill.

As shown in the illustrations on this page, the joists were cut lengthwise at the center, notched to permit passage of the pipes used and after the pipe coils had been laid the notched sections were spiked back to the lower half. The system employs 400 feet of 2-inch pipe, 600 feet of 2½-inch pipe, and 150 feet of 3-inch pipe fabricated by the Chicago Nipple Co. Part of the house is two stories, the remainder only one.

Speaking of the advisability of using heated pipes under a wood floor, Mr. Adlam remarks: "Provided the floor boards are well seasoned, there is never any trouble due to the heat. Teak has been used very extensively for this particular purpose, although wood blocks have been used on many occasions with great success."

Palco Wool Treated To Resist Flame

SAN FRANCISCO—A new "Saferized" flame-proof process for treating the Redwood bark fibers from which Palco Wool insulation is made has been announced by Pacific Lumber Co. The new process is said to augment the inherent fire-resistant qualities of the bark, and is designed to meet the most exacting requirements for flame-proof materials.

Blow-torch tests to which the new Saferized Palco Wool has been subjected show that when a sample is held in the hand and the flame blown directly into it, no fire results when the torch is removed, it is claimed.

Bomb Shelter-Garage Proposed For Boston

BOSTON—Construction of an air conditioned air raid shelter under Boston Common is asked by John P. Cahill of Everett, Mass., in a petition filed with the Massachusetts state legislature. In times of peace, the shelter would be converted into a parking garage, five stories deep, according to Mr. Cahill's proposal.

G-E Supply Office Moved

KANSAS CITY, Mo.—General Electric Supply Corp. has moved from its former location at 1411 Walnut St. to new quarters at 21st St. and Broadway. The new location provides switch track facilities, 30% more space for the handling of merchandise, and better car parking facilities. A. W. Gilmore is district manager, and J. W. Puckett is district operating manager.

Range Shipments Gain 32% In November

NEW YORK CITY—Electric range shipments in the United States and its possessions increased 32.6% during November over the same month of 1939, and 11-month sales were more than 34% higher than those of the previous year, according to reports of manufacturers to National Electrical Manufacturers Association.

November shipments to distributors and dealers in the U. S. and possessions totaled 25,248 units, as compared with 19,008 for the same month of 1939. Sales for the 11 months of 1940 totaled 379,613 units, as compared with 283,417 for the same period of the previous year.

Beecher-Cumming To Push Locker Jobs In 1941

MINNEAPOLIS — Beecher-Cumming Co., pioneer air conditioning and heating sales and engineering firm, has moved from its former location, 820 Second Ave. South, from which it had conducted operations for 17 years, to new headquarters at 8 South Ninth St.

While the company will continue its dealer activities in Westinghouse products, including refrigerators, ranges, and small appliances, major emphasis this year will be on the wholesale and engineering end of the business, F. J. Cumming, president, said. Locker plant installations particularly will be pushed.

In addition to Westinghouse equipment, Beecher-Cumming also distributes Peerless stokers, Nu-Way oil burners, and Westinghouse Sterilamps in the northwest territory.

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ASH&VE Talks Cover Radiant Heating, Airliner Comfort, Refrigerant Reheating And the 'Human' Factor In Cooling

(Concluded from Page 1, Column 5)

society's research laboratory at Pittsburgh during the past year, F. C. Houghten described a study of "Radiation as a Factor in the Sensation of Warmth." Two identical rooms were constructed on the laboratory roof; one equipped with a forced warm air heating system; the other with radiators.

Results of the studies indicated that most people are more comfortable in a slightly lower air temperature in the presence of radiant heat supplied by radiators, than in the room heated by convection alone. Mr. Houghten pointed out that no two people are exposed to exactly the same Mean Radiant Temperature at one time, and that the test data were also limited by the fact that ordinary radiators give off a considerable percentage of convected heat, as well as producing radiant energy.

MEASURING RADIANT HEAT

In attempting to measure the amount of radiant heat in the test room, Mr. Houghten used the Vernon Globe thermometer. This instrument consists of a large copper sphere, painted black, which presents a surface to all parts of the room. This unit was further equipped with a number of thermocouples to measure its surface temperatures.

Mr. Houghten reported that use of the instrument was "quite satisfactory" and he would recommend it for general use. In the discussion following the report, Lt. Commander R. M. Watt of the U. S. Navy stated that he had made up 15 of the special globe thermometers, and had not found them at all suitable for field use. They were easily damaged, he pointed out, and varied in accuracy. The principal difficulty, however, was that the thin globes were easily dented in shipment and while tests were in progress.

C. A. E. Winslow answered from the floor, stating that the society's committee on instruments was developing a new device for measuring radiant heat, and that the new instrument would be available in due time.

In his criticism of the paper, Walter L. Fleisher, presiding president of the organization, decried the tendency of research workers to draw "curves" through a large mass of unrelated points on a chart, where no "curve," in reality, existed. Pointing to the many variables in the "radiation" tests, such as human factors, Mr. Fleisher stated that "drawing curves through isolated points on a chart does not prove anything."

REHEAT COIL CUTS COST

Of particular interest to air conditioning and refrigerating engineers was a paper by S. F. Nicoll of York on "Reheating by Means of Refrigerant Compressor Discharge Gas." Pointing out the importance of being able to alter the relative proportions of sensible and latent heat absorbed by an air conditioning system, Mr. Nicoll stated that a source of reheat necessary for this purpose is found in the compressor discharge gas.

In a study of numerous installations which have coils carrying the refrigerant discharge gas located directly in the air stream of the system, Mr. Nicoll has found that there is always enough heat available to neutralize all of the sensible cooling effect, when dehumidification alone is required. This method saves the cost of having a steam or hot water source available for a reheat coil, which produces the same result.

Air conditioning engineers know that when a comfort cooling system is operating at only a fraction of its total capacity, the humidity will rise, because the system is removing moisture from the air during only a small percentage of the time. Control is from a thermostat, which registers only sensible heat.

By using a reheat coil, the percentage of latent heat removed can be increased, thus lowering the humidity in the room. The compressor cycle will be longer, and conditions more stable. Other methods of doing the same thing are by coil face control, coil thickness control, starving the refrigerant feed (Modutrol), air volume control, and various by-pass methods. Mr. Nicoll reports, however, that reheat by means of compressor gas has been found to be entirely satisfactory. The reheat coil may be located directly in the air stream, or in a by-pass around the cooling coil.

D. W. Tomlinson, vice president in charge of engineering, Transcontinental & Western Air, Inc., gave members of the society something to think about when he described the efforts of the aviation industry to provide "Comfort in High Altitude Flying." With the development of the "stratoliners," problems, not only of temperature and humidity, but of pressure (supercharging), must be solved.

Tracing the development of airplane heating methods, Mr. Tomlinson described the old Ford tri-motor systems, which consisted of a metal pipe covering the exhaust tail pipe, and introduced heat under the seats. Main difficulties with this method were lack of control and danger of fire.

AIRLINER PROBLEM COMPLEX

The first Douglas DC-1 planes used a low pressure steam heating system and since that time rapid strides have been made toward the system which serves the Boeing Stratoliner. This consists of 1. fresh air system; 2. spent air system; 3. warm air system; 4. steam system; and 5. ground air conditioning system.

Without being given a description of these complicated systems and their control, it is easy for members of the industry to understand the complexity of the problems involved. The fresh air system keeps the cabin at a pressure not less than that encountered at 10,000 or 12,000 feet; the spent air system acts as a "safety valve" for sudden descents; the heating system keeps the plant at about 72° F. with the aid of the steam generating system, and the final system is used only on the ground.

A trans-ocean "Clipper" has a heat loss of 400,000 B.t.u. at 12° F. below zero and a 250-mile wind velocity. In designing equipment to meet this load, aircraft engineers know that any increase in weight adds from $10 to $100 per pound in the cost of the plane and also decreases the important payload ratio.

Commenting on Mr. Tomlinson's talk, E. O. Eastwood stated that air conditioning engineers had not approached the aircraft problem because 1. the plane companies worked in absolute secrecy and 2. the field of application had been relatively limited. In reply, Mr. Tomlinson stated that aircraft engineers would welcome "all suggestions" in solving the complex problems that are faced by the aircraft industry.

WHAT IS 'SENSATION OF COMFORT?'

"The Influence of Physiological Research on Comfort Requirements," by Dr. Robert W. Keeton, head of the department of medicine, University of Illinois, shed further light on the problem of keeping large groups of people comfortable at a given effective temperature. Dr. Keeton traced much of the work that has been done by the society along the lines of physiological research and added considerable material concerning the way the human body develops heat.

According to Dr. Keeton, the rate at which a human being produces heat is related to muscular activity, blood volume, shifting of the blood mass, and cardiac output. These and other physiological factors were discussed in detail.

All studies of this kind are pointed toward a solution of the problem of human comfort. In his paper, Dr. Keeton says, "it should be very helpful to have some method of measuring objectively the sensation of comfort," which is described as an "affective state."

"A given taste in the mouth may be recognized as sour or sweet. In the next breath, the individual describes it as pleasant or unpleasant. Pleasant is not a sensation but a description of the effect produced on the subject by a taste sensation. Most of the investigators agree and the experiments of Winslow show quite clearly that on the cold border of the comfort zone the skin temperature and presumably the stimulation of the cold spots give rise to a feeling of discomfort.

"When one approaches the warm end of the comfort zone the answer to the question is not so obvious. . . . Here there are apparently two physiological processes, a sensation of warmth produced by the stimulation of warm spots, and the secretion of sweat, to which the sensation of unpleasantness can be attributed."

Dr. Keeton cites a number of reasons why individuals are not all "comfortable" at given points in the comfort zone.

"The heat production of individuals may be below normal. This can be due to a lack of secretion of the thyroid gland. Such people are notoriously cold in the customary environmental temperatures. They keep the windows closed, wear stockings in bed, and fur coats in mild weather.

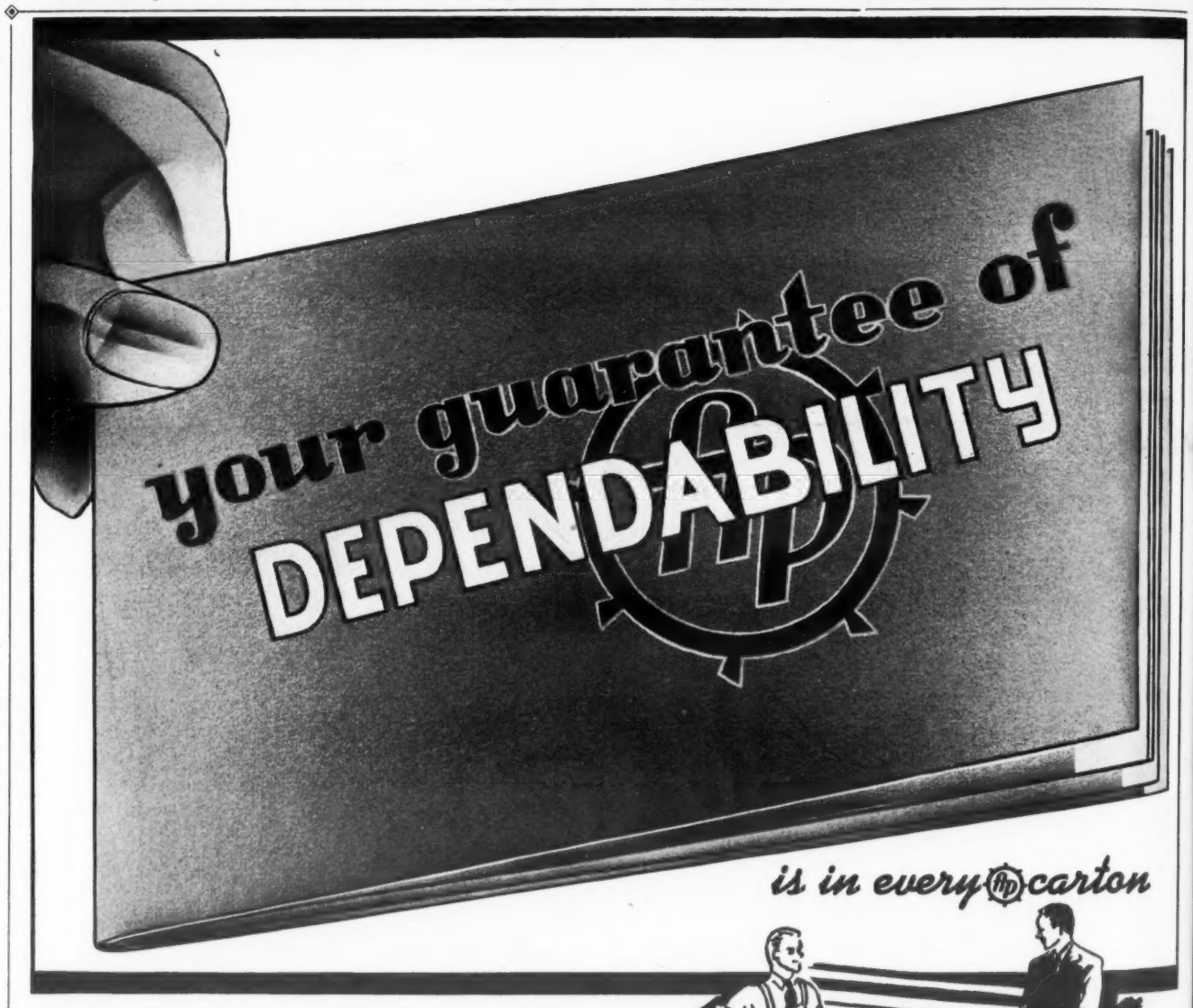
"If an individual has eaten poorly, lost weight, and become emaciated, his heat production fails to conserve energy. He too suffers from cold. In this group fall elderly people and certain other individuals with unusually active sympathetic nervous systems."

On the other side of the ledger, Dr. Keeton has found, "a number (of people) who are unusually active. They move around more than usual. Their heat production is increased by voluntary activity. Other individuals will be found who eat heavily and have increased heat productions, due to food. Finally, there are others in whom the heat production may be elevated because of over-activity of the thyroid gland. For them, comfort is to be found over lower temperature ranges.

"Women who have more fat in their subcutaneous tissues than men have wider than normal comfort zones with extensions on both ends. Finally, fat men have their comfort zone moved downward into colder environments," Dr. Keeton stated.

Carrier Holds Movie Preview During All-Industry Show

(Left) Jack Gazelle, Carrier Atlanta manager, Stan Ellison, commercial refrigeration manager, and Walter Bowe, advertising manager, at the preview of a new Carrier motion picture with Naomi Anderson who assisted in the Carrier exhibit at the All-Industry Exhibition. (Center) Ed Gifford, Anemostat representative in Milwaukee, E. T. Murphy, Carrier general manager, and W. F. Slater, Carrier distributor in Memphis, relax while waiting to see the new film. (Right) V. S. Day, assistant to Mr. Murphy, stops to chat wiht H. G. Strong, Chicago district manager for Carrier.



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